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with Compliments
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CONTRIBUTIONS TO AMERICAN BOTANY. XVI.

I. Upon a Collection of Plants made by Dr. E. Palmer, in 1857, about Guaymas, Mexico, at Muleje and Los Angeles Bay in Lower California, and on the Island of San Pedro Martin in the Gulf of California.

II. Descriptions of some New Species of Plants, chiefly Californian, with miscellaneous Notes.

By SERENO WATSON.

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FIELD
MUSEUM

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CONTRIBUTIONS TO AMERICAN BOTANY.

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Presented October 10, 1888.

1. *Upon a Collection of Plants made by Dr. E. Palmer, in 1887, about Guaymas, Mexico, at Muleje and Los Angeles Bay in Lower California, and on the Island of San Pedro Martin in the Gulf of California.*

The peninsula of Lower California and that portion of the Mexican mainland which borders the intervening Gulf, though reputed a sterile land, have always wherever they have been explored yielded a rich harvest of novelties to the botanical collector. Much therefore was expected from so keen and careful a collector as Dr. Palmer, when he undertook to spend a season at Guaymas, and from that point to explore such other places as might be accessible to him. Though the season of 1887 proved very unfavorable on account of its dryness, the result has nevertheless been very satisfactory. Of the 415 native species collected, 89 species, or more than one fifth, are wholly new, and many others are of great interest in various respects.

The larger part of the collection was made about Guaymas itself, which town lies on the eastern side of the Gulf of California, in the State of Sonora, in lat. 28° N., and 250 miles south of the United States boundary. It is hemmed in closely by very rocky hills and low mountains (of 1200 to 1500 feet altitude), intersected by narrow valleys. The artificially watered gardens, with their irrigating ditches and brush fences, protecting and favoring the growth of numerous native plants, the rocky islands in the harbor, and the valleys and mountains around, were all alike searched. Dr. Palmer remained here from the middle of June to the middle of November, during which time there were only occasional slight showers, which commenced in August. The species obtained here numbered 283, of which 40 were also

found in other localities.* Muleje, upon the western side of the Gulf, 90 miles from Guaymas, is described as in a dry, barren, and mountainous region, where except in the very short rainy season the only green vegetation to be seen is along the banks of a small creek. This place was visited early in June, and again late in December. Of the 49 species collected here, 24 occurred elsewhere, mostly at Guaymas. Los Angeles Bay, also on the peninsula, about 200 miles northwest from Guaymas, was visited at an unusually favorable time, after a rain which was the first that had fallen in twenty-two months, and when vegetation was in full bloom. The surrounding country is very mountainous, some of the ridges having an altitude of 2,000 to 3,000 feet. About a month was spent here (from November 22 to December 20) and 112 species were collected, of which 23 had been found previously. The remaining station was the island of San Pedro Martin, lying about 80 miles northwest from Guaymas. This island has a circumference of about 4½ miles and an altitude of 1,200 feet, and is exceedingly rough and rocky, intersected by cañons and largely covered with guano. A very few small fig trees were found, but the only useful wood is furnished by the *Cereus Pringlei*, which forms almost a forest over the summit. During an eight days' stay (October 24 to November 5) only 19 species were collected, of which seven were not peculiar to the island.

The characteristics of the flora of the region bordering the Gulf of California, so far as shown by this collection, are for the most part those common to the flora of the whole arid region of the interior, from southeastern California, Arizona, and New Mexico southward into Mexico, distinct in a great measure from that of California proper on the one side, and that of the Gulf States on the other. Nearly or quite two thirds of the species range northward beyond the Mexican boundary. In the mountains about Guaymas we find a considerable number that are identical with or allied to species that have recently been collected by Pringle and Palmer in the mountains of Chihuahua. We have here also probably the northern limit on the Pacific coast of the tropical or subtropical genera *Rhizophora*, *Hæmatoxylon*, *Portlandia*, *Citharexylum*, *Pedilanthus*, *Ficus*, etc. The pro-

* Cultivated and introduced plants are not included in the numbers above given. Sixteen species of the collection are considered of this character, viz.: *Oligomeris glaucescens*, *Portulaca oleracea*, *Gossypium herbaceum*, *Triphasia trifoliata*, *Melilotus parviflorus*, *Tamarindus Indicus*, *Capsicum cordiforme*, *C. annuum*, *Crescentia alata*, *Beta vulgaris*, *Panicum sanguinale*, *Sorghum Halepense*, *Eleusine Ægyptiaca*, *E. Indica*, *Eragrostis major*, and *Lolium perenne*.

portion in which the several orders are represented in the collection is somewhat remarkable. Of the 415 species, one fourth are equally divided between the *Gramineæ* (50) and the *Compositæ* (50). Another fourth includes only the four orders *Leguminosæ* (44), *Euphorbiaceæ* (32), *Malvaceæ* (17), and *Solanaceæ* (15). These are followed by the *Nyctaginaceæ* (15), *Convolvulaceæ* (13), *Asclepiadaceæ* (10), and 53 other orders with still fewer species. The important orders *Ranunculaceæ*, *Rosaceæ*, *Saxifragaceæ*, *Umbelliferæ*, *Ericaceæ*, *Cupuliferæ*, *Coniferæ*, and *Orchidaceæ* are wholly unrepresented. Excluding the *Cyperaceæ* and *Gramineæ*, there are only five endogenous species in the entire collection.

For the determination of the species the *Cyperaceæ* were referred to Dr. N. L. Britton, Curator of the Torrey Herbarium, the *Gramineæ* to Dr. George Vasey, Botanist of the Agricultural Department at Washington, and the *Filices* to Prof. Daniel C. Eaton. Special acknowledgment is also due to Prof. Daniel Oliver, of the Kew Herbarium, for suggestions respecting the relations of a few of the more difficult species in other orders.

Cocculus diversifolius, DC. Guaymas. (60.)

Argemone albiflora, Hornem. Differing from *A. Mexicana* in the narrower, less distinctly mottled, and less deeply sinuate leaves, more naked peduncles, white flowers, narrower buds and capsules, the capsules narrowed upward from near the base, and the much smaller seeds. "Cardo"; the dried juice used as a remedy for inflamed eyes. Muleje. (7.)

Argemone Mexicana, var. (?), with obovate-spatulate petals, few stamens, narrow buds, narrow capsule attennate to a distinct style, and irregularly pitted seeds much smaller than usual. About Guaymas. (105.)

Eschscholtzia cæspitosa, Benth., var., with more coarsely divided leaves. Rocky ridges, Los Angeles Bay. (590.)

Cardamine Palmeri. Annual, erect, smooth and somewhat glaucous, branching above, 1 or 2 feet high: leaves simple, thin, round-ovate, cordate at base, obtuse, usually rather deeply sinuate-toothed or -lobed, the larger 2 inches long; petioles a little shorter: flowers purplish, 3 or 4 lines long: pods slender, 1 to $1\frac{1}{2}$ inches long by $\frac{2}{3}$ of a line wide, beaked with a slender style, ascending on petioles 3 or 4 lines long: seeds small. — Resembling *C. cordifolia* of the Rocky Mountains. Under bushes near salt water, Muleje. (421.)

Cardamine angelorum. Annual, glabrous and glaucous, suberect, branching above, leafy to the base of the short raceme: leaves pinnately divided, the straight divaricate lobes (5 or 6 pairs) linear, obtuse, entire or rarely with a lateral lobe at base, 9 lines long or less: flowers purplish, 2 lines long: pods slender, $1\frac{3}{4}$ inches long by $\frac{2}{3}$ of a line wide, ascending; style short: seeds small. — On stony ridges near Los Angeles Bay. (594.)

Nasturtium (?) laxum. Annual, glabrous, slender, ascending, the elongated branches very lax: leaves pinnately divided, the narrowly linear straight divaricate segments (2 or 3 pairs) entire, acute, 8 lines long or less: raceme lax, elongated, the soon distant flowers small ($1\frac{1}{2}$ lines), purplish, on slender spreading pedicels: immature pods reflexed, narrow, 3 to 6 lines long, about equalling the pedicels, the cells about 6-seeded; style stout. — The purplish flowers and immature pods leave the genus somewhat doubtful. It may be a *Thelypodium*, though differing in habit from other species of that genus. On sandy plains near Los Angeles Bay. (598.)

Sisymbrium canescens, Nutt. Mountains, Los Angeles Bay. (579.)

Lepidium Palmeri. Annual, decumbent or procumbent, branching from the base, hispid throughout: leaves pinnately divided, the narrow lobes with usually a single tooth on the upper margin: racemes sessile, short, rather dense; pedicels short, broad and flat: flowers minute, apetalous: stamens 2: pods thinly pubescent, round-ovate with short blunt wings, $1\frac{1}{2}$ to nearly 2 lines long, on spreading or somewhat recurved pedicels; stigma sessile. — At Los Angeles Bay, in the shade of rocks and bushes. (560.)

Lyrocarpa Coulteri, Hook. & Arn. The typical form. At Los Angeles Bay, among rocks and under bushes. (540.)

Cleome tenuis. Annual, erect, slender, branching, 1 to 3 feet high or more, glabrous or the petioles pubescent: leaves 5-foliolate, the leaflets narrowly to linear-oblanceolate, obtuse, $\frac{1}{2}$ to 1 inch long, equalling the petioles: racemes loose, few-flowered; flowers yellow, 2 lines long, on slender pedicels: pods sessile, narrow, spreading, 1 to $1\frac{1}{2}$ inches long, including the style: seeds transversely rugose. — At Guaymas, on hillsides. (214.)

Wislizenia Palmeri, Gray. Three to five feet high; leaves mostly 3-foliolate. At Guaymas. (74.)

Atamisquea emarginata, Miers. A stiff brittle shrub, about 6 feet high, with white flowers. Muleje. (28.)

Oligomeris glaucescens, Camb. At Los Angeles Bay, in saline soil. (547.)

Ionidium polygalæfolium, Vent. Among rocks in dried creek-beds; Guaymas. (253.)

Amoreuxia palmatifida, DC. "Sayas"; the roots have the taste of the parsnip and carrot, and are eaten by the Yaqui Indians, and made into a preserve by the Mexicans. Guaymas. (176.)

Krameria canescens, Gray, var.; slightly pubescent, and leaves small and distant. Guaymas and Los Angeles Bay. (151, 565.)

Krameria parvifolia, Benth. The typical form. At Guaymas. (248.)

Frankenia Palmeri, Watson. A compact shrub, 1 to 3 feet high. At Los Angeles Bay. (541.)

Drymaria crassifolia, Benth. At Los Angeles Bay. (570.)

Portulaca oleracea, Linn. "Verdulaga; common all over the country." Guaymas. (116.)

Anoda pentaschista, Gray. Guaymas. (661.)

Horsfordia Newberryi, Gray. Flowers orange. On rocky hills at Guaymas. (314.)

Horsfordia rotundifolia. Annual, erect, slender, 2 feet high or more, finely and softly pubescent; branches short: leaves round-cordate, obtuse or retuse, crenate, an inch broad or usually much less, white-velutinous beneath, greener above: inflorescence elongated and paniculate, nearly naked: peduncles slender, 4 to 9 lines long, jointed above the middle: flowers orange to sulphur-yellow, 9 lines broad; calyx 2 lines long, the lobes acute or short-acuminate: carpels 6 to 8, 4 lines long, 2-ovuled, 1-seeded, the thin sides of the cell strongly reticulate and becoming clathrate, the erect wings lanceolate: seed pubescent. — On an island in the harbor of Guaymas. (351.)

Horsfordia Palmeri. Erect, 3 to 6 feet high, stout and branching, densely stellate-pubescent throughout: leaves lanceolate, obtusish, cordate at base, entire or subcrenate, 3 inches long or less: flowers axillary, solitary or clustered, on slender peduncles 6 or 8 lines long and jointed above the middle: calyx 3 lines broad; corolla "light pink," turning blue, an inch broad: carpels 10 to 12, 4 lines long, 1-seeded, the basal portion strongly reticulated, the wing obliquely deltoid: seed puberulent. — On broken stony ground near Los Angeles Bay. (558.)

Sida carpinifolia, Linn. Guaymas. (316.)

Abutilon crispum, Don. Guaymas. (95.)

Abutilon incanum, Don. (*A. Texense*, Gray.) Guaymas. (104, 288.)

Abutilon Palmeri, Gray. Guaymas. (239.)

Abutilon aurantiacum, Watson. San Pedro Martin Island. (401.)

Abutilon scabrum. Erect, 3 feet high, scabrous throughout with very fine stellate pubescence, scarcely at all canescent: leaves thin, cordate to cordate-lanceolate, acuminate, rather coarsely and unequally toothed, 3 inches long or less, on slender petioles: flowers bright orange, an inch broad, axillary, solitary, on slender peduncles exceeding the petioles and jointed near the top; calyx as long as the petals, the ovate acute lobes apparently cordate, enlarged in fruit: carpels 8, shortly acuminate, very finely pubescent, 5 lines long. — Near *A. Jacquini* and *A. Berlandieri*, which are softly pubescent and not at all scabrous. Among bushes in ravines and by garden fences near Guaymas. (97, 662.)

Sphæralcea ambigua, Gray. In mountain cañons near Los Angeles Bay (537), and a small-flowered form from S. Pedro Martin Island (405). Also what is probably a form of this species from garden fences at Guaymas. (90.)

Sphæralcea axillaris. Stellate-pubescent; stems long and slender: leaves ovate to lanceolate, acutish, subcuneate at base, finely crenate, 2½ inches long or less, the petioles half as long: flowers yellowish, an inch broad, in short axillary solitary or clustered racemes or panicles; calyx 3 lines long, the lobes acuminate: carpels about 15, 1-seeded, 1½ lines long, obtuse, the base very strongly reticulated, the broader empty cell thin and scarious. — Muleje; common in shady places. (17.)

Sphæralcea (?), sp. Imperfect specimens from S. Pedro Martin Island. (404.)

Kosteletzkya Coulteri, Gray? A rather stout branching plant, 3 feet high, with deeply 5–7-lobed leaves, and "white" flowers drying to greenish yellow. Coulter's original specimens are much reduced, with only the upper leaves deeply lobed, the flowers apparently yellow, and the anthers few. The present plant is probably the fully developed form. In waste places about Guaymas. (236.)

Hibiscus denudatus, Benth. Los Angeles Bay. (523.)

Hibiscus Coulteri, Gray. River-bed, Guaymas. (668, 669.)

Gossypium herbaceum, Linn. In garden fences at Guaymas; the plants 8 feet high and said to be forty years old. (110.)

Gossypium Davidsoni, Kell. A loose shrub 3 to 5 feet high, the larger leaves 3-lobed; bractlets ample, deeply laciniate, persistent about the ovate capsule, which is half an inch long and 3- or rarely 4-celled; seeds 6 or 8 in each cell, in two rows, not at all lanate or the

testa showing only a rudimentary lanate condition. The flowers are sulphur-yellow with a brown spot at the base of each petal. This appears to be a true *Gossypium*, notwithstanding the naked seeds. In mountain ravines near Guaymas. (244.)

Hermannia pauciflora, Watson. Among rocks in the mountains near Guaymas. (227.)

Melochia tomentosa, Linn. In fences about Guaymas. (148.)

Melochia speciosa. Closely resembling *M. pyramidata* in foliage and fruit, but more shrubby and branching, less virgate, and finely stellate-pubescent throughout: flowers in loose axillary and terminal cymes, large, rose-color turning purple; sepals 3 lines long; petals 8 lines long, spreading; capsule finely pubescent, shortly stipitate, resembling that of *M. pyramidata*, but the margins of the cells rounded (not acuminate). — In mountain cañons about Guaymas. (650.)

Waltheria detonsa, Gray. Guaymas. (251.)

Ayenia Berlandieri, Watson, var.? Less pubescent, etc.; the same as 83 Palmer (1885) from Batopilas. In ravines near Guaymas. (243.)

Ayenia filiformis. Annual, erect, the slender stems finely pubescent: leaves thin and glabrous or nearly so, from narrowly ovate and obtuse to narrowly lanceolate and acute, 2½ inches long or less, on slender petioles, subtruncate at base, coarsely toothed: pedicels clustered or solitary in the axils: sepals narrow, a line long; petals purple, the blade rhombic, attenuate to the filiform claw, with a deep sinus at the apex embracing the filament, and a filiform dorsal appendage: fruit 2 lines in diameter, beset with numerous slender green processes: seeds surrounded by 2 or 3 stout irregular rugæ, the intervals more or less pitted. — Resembling and probably including some western forms that have been referred to *A. pusilla*, but certainly distinct from the typical form of that species as it is found in the West Indies and Brazil. In the shade of rocks high in the mountains about Guaymas. (292.)

Bunchosia parvifolia. A shrub 3 or 4 feet high, intricately much branched: leaves sparsely appressed-hairy, round-ovate to ovate-oblong, acute, mostly obtuse at base, glandless, 15 lines long or less, on very short petioles: racemes few-flowered, pubescent: calyx 10-glandular; petals pink, 2 lines long: ovary glabrous; styles nearly distinct: drupe red, 5 to 6 lines in diameter. — On a high rocky peak near Guaymas. (336.)

Galphimia angustifolia, Benth., var. oblongifolia, Gray. Mountains about Guaymas. (217.)

Echinopterys Lappula, Juss. A shrub 3 to 5 feet high, with an abundance of golden yellow flowers. The plant differs from Jussieu's description only in the acute or acutish instead of acuminate leaves, and perhaps in the indumentum of the ovary. The cocci of the mature fruit, which was not known by him, are 2 lines long, ovate, acute, densely pubescent, carinate with a row of stout subspinulose pubescent bristles, and the whole dorsal surface covered more or less densely with similar bristles. The seed is oblong-ovate, with a thin membranous testa, the cotyledons curved and somewhat unequal, and the radicle short and straight. Rocky mesas near Guaymas. (181.)

Hiræa macroptera, DC. "Matanene"; the leaves used in poultices for bruises and sores. Muleje. (19.)

Janusia Californica, Benth. In mountain ravines about Guaymas. (263.)

Tribulus grandiflorus, Benth. & Hook. "Mal de ojos"; the pollen is said to be injurious to the eyes. Common about Guaymas. (177, 225.)

Tribulus Californicus, Watson. Guaymas. (651.)

Tribulus maximus, Linn., var.? Scarcely or not at all hispid, the pubescence short and mostly appressed: flowers smaller; calyx ($1\frac{1}{3}$ lines long) usually deciduous: fruit smaller; nutlets about 8, more strongly tuberculate. — About Guaymas. (107.)

Fagonia Californica, Benth. Los Angeles Bay. (546.)

Guaiacum Coulteri, Gray, — at least as to Thurber's specimens from Sonora. It is probably also the *G. parvifolium* of Planchon (Gray, Pl. Wright. 1. 29; *G. Planchoni*, Gray, Proc. Am. Acad. 22. 306, where this name is proposed on account of a supposed earlier "G. parvifolium, Engelm.," by which *G. angustifolium*, Engelm., must have been meant), of which there is a fragment in Herb. Gray. A shrub or small tree, 10 to 15 feet high and 15 inches in diameter, on hills and mesas about Guaymas, where it is known as "guayacan." The flowers are dark purplish blue and very fragrant; filaments naked. (113.)

Viscainoa geniculata, Greene. A weak shrub, 5 to 8 feet high: flowers white. The genus is nearly allied to *Chitonia*. Muleje and Guaymas. (27.)

Erodium Texanum, Gray. Los Angeles Bay. (566.)

Triphasia trifoliata, DC. Cultivated at Guaymas. (649.)

Bursera microphylla, Gray. "Torote blanco"; 6 to 12 feet high; the bark used for tanning. Common on the mesas about Guaymas. (163.)

Bursera Hindsiana, Benth. & Hook. A scrubby bush, 8 feet high, the leaves simple or 3-foliolate upon the same plant: seed black at base, covered above with a hard salmon-colored arillus. The bark is much used for tanning, giving a reddish brown color. Los Angeles Bay. (572.)

Bursera laxiflora. A small tree with a trunk from 6 inches to a foot in diameter: leaves pinnate, sparingly pubescent, the pubescence short and mostly spreading; rhachis narrowly winged; leaflets 2 to 4 pairs, thin, ovate to oblong, mostly obtuse, entire or usually with 1 to 4 (rarely 6) blunt teeth, 3 to 9 lines long: peduncles axillary, solitary, very slender, 1 to 4 inches long, 1–3-flowered, and often with 1 to 3 simple foliaceous bracts; pedicels about 6 lines long: sepals narrow, nearly a line long: fruit obovate, narrowed at base, somewhat compressed, 2-valved, 4 lines long. — "Copal"; in ravines about Guaymas. (280.)

Bursera pubescens. A tree 10 to 15 feet high, with stout trunk and branches: leaves finely pubescent, pinnate, the rhachis not winged, 1 or 2 inches long; leaflets 4 or 5 pairs, rather thick, oblong-elliptic and entire, 2 to 4 lines long, obtuse, the terminal one cuneate-obovate and crenately toothed or lobed: flowers and fruit unknown. — Evidently a *Bursera*, but unlike any known species in its foliage. Wood brittle and bark deciduous in broad thin flakes. Plains and stony ridges about Los Angeles Bay. The bark is exported to Europe for tanning. (585.)

Maytenus phyllanthoides, Benth. A low bush or small tree in sandy and alkaline soils. Muleje and Guaymas. (30.)

Zizyphus lycioides, Gray, var. canescens, Gray. A small tree, 10 feet high. In sandy bottoms about Muleje and Guaymas. (29.)

Zizyphus Sonorensis. A small tree with a trunk 5 to 8 feet high and 6 to 10 inches in diameter, with smooth grayish bark and a compact top, the short rigid branches very thorny: leaves nearly glabrous, thin, ovate to ovate-elliptical, obtuse or retuse, subcuneate to slightly cordate at base, entire or slightly toothed, 1 or 2 inches long with petioles 2 lines long: panicles short, finely pubescent, axillary and terminal: fruit subglobose and reddish brown when ripe, about 5 lines long, edible, the pedicel 2 lines long: putamen oblong-obovate, 2-celled, 2-seeded, 4 lines long. — Common about Guaymas, near brackish water. (124, 659.)

Colubrina glabra. A compact shrub, 5 or 6 feet high, unarmed, glabrous or very nearly so: stipules subulate, rigid, deciduous; leaves mostly fascicled, oblong-ovate to elliptical or obovate, obtuse or retuse,

subcuneate at base upon a short slender petiole, 2 to 10 lines long: pedicels very slender, 2 to 4 (or in fruit 6 to 8) lines long: petals linear, equalling the filaments: fruit depressed-globose, 2 or 3 lines broad. — Ravines about Guaymas. (200.)

Serjania (Phacococcus) Palmeri. A stout climber, pubescent throughout with short soft spreading hairs: leaves twice pinnate, the lowest pinnæ 5-foliolate, the next 3-foliolate, and the upper of a simple leaflet; leaflets entire or rarely toothed, mostly oblong, acute or acutish, cuneate at base, 2 to 6 or sometimes 12 lines long: peduncles solitary, equalling or exceeding the leaves, the narrow panicles much longer: sepals finely pubescent, a line long: filaments pubescent: fruit 7 to 11 lines long, finely pubescent, the cells subglobose, 2 lines or more broad, faintly reticulate, thin and crustaceous, narrowly crested on the back, the wing broadly dilated to a rounded base (3 or 4 lines broad); dissepiment narrow: seed attached below the middle, globose and filling the cavity. — In foliage and pubescence closely resembling *S. sphenocarpa*, as described, but the fruit is very different; flowers very fragrant. Common about Guaymas. (61.)

Cardiospermum Halicacabum, Linn. Guaymas. (126.)

Paullinia Sonorensis. A compact shrub 2 or 3 feet high, with flexuous branches, very finely tomentose when young: leaves glabrous, pinnately 5-foliolate, the rhachis narrowly winged above; leaflets ovate to oblong-ovate, 3–5-toothed or -lobed, the lower often ternate, cuneate at base or shortly winged-petiolate, 6 to 8 lines long: peduncles about equalling the leaves (2 inches long or less), few-flowered: sepals oblong, obtuse, a line long or more: capsule depressed-globose, abruptly stipitate, finely tomentose, 3 lines long, on a pedicel 1 or 2 lines long. — On rocks in the mountains about Guaymas. (238.)

Dodonæa viscosa, Linn. Guaymas. (290.)

Lupinus Arizonicus, Watson. Sandy bottoms at Los Angeles Bay. (595.)

Lupinus, sp. near *L. concinnus*, Ag. Mountains near Los Angeles Bay. (586.)

Melilotus parviflorus, Desv. Muleje. (12.)

Hosackia rigida, Benth. Mountains; Los Angeles Bay. (532.)

Hosackia strigosa, Nutt. A broad-leaved and small-flowered form. Rocky ridges at Los Angeles Bay. (602.)

Dalea megacarpa, Watson. Leaflets often glabrous on the upper surface; 2 or 3 feet high, with very fragrant yellow flowers. Rocky ravines near Los Angeles Bay. (522.)

Dalea Pringlei, Gray. Guaymas. (667.)

Dalea mollis, Benth. Guaymas and Los Angeles Bay. (333, 512, and 550.)

Dalea Parryi, Gray. Guaymas and Los Angeles Bay. (315, 666.)

Dalea Emoryi, Gray. Leaves mostly oblong-obovate, occasionally obtusely toothed. A rough bush, 2 to 5 feet high; used as a yellow dye by the Indians. Los Angeles Bay. (542.)

Indigofera Anil, Linn. Used by the Indians for dyeing palm leaves. Guaymas. (102.)

Indigofera mucronata, Spreng. Mountains about Guaymas, in the shade. (296.)

Tephrosia tenella, Gray. Mountains about Guaymas. (249.)

Tephrosia Palmeri. A tall slender much branched perennial, very finely appressed-pubescent throughout: stipules narrow, 1 or 2 lines long; leaflets 3 to 6 pairs, linear to linear-oblong, 8 to 20 lines long, obtuse or acutish, the rhachis 1½ to 3 inches long: peduncles and racemes elongated: flowers scattered on short pedicels, light yellow, 9 lines long; calyx 3 lines long, the teeth as long as the broad tube; banner pubescent: pod narrow, nearly straight, 1½ to 2½ inches long or more, pubescent, spreading. — In the mountains near Guaymas. (246.)

Tephrosia constricta. Annual, slender, erect, glabrous or nearly so, a foot high: stipules linear-subulate; leaves 1-foliolate, the leaflet nearly sessile, linear, 1 to 2½ inches long by a line wide or less: flowers solitary, opposite or lateral to the axil; calyx-lobes acuminate, exceeding the campanulate tube; corolla reddish and white, 3 lines long: pod glabrous, linear, an inch long, spreading or reflexed upon the short pedicel, 6–10-seeded, with a thin septum between the seeds and usually a partial one at the stricture: seeds quadrate-oblong, sharply constricted in the middle. — In habit much resembling *T. tenuis* of India. The seed is very peculiar. In ravines in the mountains about Guaymas, sometimes very abundant. (222, 261.)

Diphysa sennoides, Benth. On stony mesas; Guaymas. (198.)

Cracca Edwardsii, Gray. Mountain slopes; Guaymas. (218.)

Sesbania macrocarpa, Muhl., var. picta. Wings orange; banner strongly marked with dark brown. "Bequilla"; the older roots were formerly used for tinder by the Yaqui Indians. Guaymas. (286.)

Astragalus Nuttallianus, Gray. Los Angeles Bay. (571.)

Nissolia Schottii, Gray. Guaymas. (170.)

Desmodium (Heteroloma) scopulorum. Annual, erect, branched, 2 feet high, the stem scabrous with very short stiff uncinate hairs; leaves 3-foliolate, the stipules and stipels setaceous; petioles $\frac{1}{2}$ to 1 inch long; leaflets thin, linear-lanceolate, 1 to $2\frac{1}{2}$ inches long by 1 to 5 lines broad, acutish, pubescent on the margin and nerves: racemes terminal and axillary, very slender, loosely flowered: flowers whitish, minute (scarcely $1\frac{1}{2}$ lines long), on spreading pedicels, solitary or in pairs: fruit 4-lobed, only the terminal lobe usually fertile; lobes 4 or 5 lines long, nearly semicircular, the ventral side straight, finely uncinate-bristly on the margin, the sides nearly glabrous. — On rocky ledges in the mountains about Guaymas. (258.)

Phaseolus filiformis, Benth. Mountains about Guaymas. (250.)

Phaseolus atropurpureus, DC., var. sericeus, Gray. Muleje and Guaymas. (8.)

Rhynchosia phaseoloides, DC. Seeds wholly red. Muleje. (1.)

Cæsalpinia gracilis, Benth. A shrub 3 to 6 feet high, with bijugate leaves, 10 stamens, and pods (1 to $1\frac{1}{4}$ inches long by 9 lines broad) mostly 1-seeded: seeds 5 lines in diameter. — Hills and mountains about Guaymas. (147, $147\frac{1}{2}$.)

Cæsalpinia (Pomaria) Palmeri. An unarmed glabrous shrub 8 to 10 feet high: jugæ 1 to 4 pairs and an odd one, on a slender rhachis from $\frac{1}{4}$ to 3 inches long; leaflets 2 or 3 pairs, oblong-elliptical, obtuse, 1 to 3 lines long: racemes terminal or axillary, sessile, short, few-flowered, glabrous or subpubescent: calyx-tube oblique; lobes nearly equal, obtuse, 3 lines long; petals brownish orange, covered more or less thickly on the back and claw with white substipitate glands: filaments and ovary pubescent: pod sessile, thin-coriaceous, glandular-dotted, falcate, $1\frac{1}{2}$ inches long by nearly $\frac{1}{2}$ broad, attenuate downward, usually 2-seeded: seeds 3 lines broad. — Guaymas. (70.)

Hæmatoxylon boreale, Watson. "Brazil"; used as a dye, and the young wood as a remedy for jaundice. Hillsides and stony ravines about Guaymas. (125.)

Hoffmanseggia microphylla, Torr., and var. glabra. On stony ridges at Los Angeles Bay. (543.)

Cassia Covesii, Gray. "Ojacen"; used in infusion for colds and fevers. Guaymas and Los Angeles Bay. (313, 575.)

Cassia nictitans, Linn. About Guaymas. (242.)

Tamarindus Indica, Linn. From three small trees in abandoned gardens at Guaymas, said to have been planted many years ago by Chinamen from Manilla. (56.)

Prosopis (?) heterophylla, Benth. Without flowers or fruit, but the peculiar foliage leaves the species unmistakable. A slender tree 10 to 15 feet high, with two or three drooping branches and thinly laminated bark, which cleaves off in large pieces. Guaymas. (628.)

Prosopis (Algarobia) articulata. An upright shrub 8 to 12 feet high, somewhat finely pubescent, armed with straight stipular spines ½ inch long or less: pinnæ a single pair on a rhachis 2 or 3 lines long; leaflets 6 to 15 pairs, narrowly oblong, somewhat reticulated, 1½ to 3 lines long: flowers greenish yellow, pedicellate in loose short-pedunculate spikes an inch or two long: petals distinct, villous at the apex, nearly 1½ lines long: anthers glanduliferous: ovary stipitate, pubescent; pod glabrous, thin-coriaceous, compressed, moniliform, 5–12-jointed, the joints about 2½ lines broad. — On stony mesas and foot-hills about Guaymas. (197.)

Prosopis (Algarobia) Palmeri. A loosely branching shrub 4 feet high, finely pubescent, armed with straight stipular spines an inch long or less: pinnæ a single pair on a very short rhachis; leaflets 3 to 6 pairs, oblong-elliptic, 2 lines long or less: flowers minutely silky, sessile in a loose short-pedunculate spike an inch long; corolla tubular and somewhat angled, deeply 5-toothed, not villous within, 2 lines long: style and filaments twice longer, yellow, the anthers bearing a large deciduous gland: ovary tomentose, stipitate, straight, many-ovuled. — Without fruit, but there can be little doubt as to the genus, though the petals are connate to near the top and without villosity. The flowers are said to be of a bright golden yellow and very fragrant. Muleje. (2.)

Desmanthus virgatus, Benth. Shrubby, about 4 feet high. Guaymas. (86.)

Desmanthus Jamesii, Torr. & Gray, var. Glabrous; the pods 3 to nearly 5 inches long; said to be a shrub. Common at Guaymas. (641, 642.)

Mimosa laxiflora, Benth. A shrub 5 to 8 feet high; flowers rose-color turning to white. About Guaymas. (149, 169.)

Acacia Wrightii, Benth. A compact shrub 5 or 6 feet high, armed with stout recurved spines. This is occasionally the case in more eastern specimens, though usually they are wholly unarmed. In a deep cañon, Los Angeles Bay. (534.)

Acacia flexicaulis, Benth. A rigid shrub, 5 feet high. Deep cañons at Los Angeles Bay. (548.)

Acacia filicina, Willd. Guaymas, in mountain ravines. (254.)

Acacia cochliacantha, Humb. & Bonpl. A small tree, 10 feet high and 2 inches thick, with fragrant flowers, and straight or curved spines 3 to 5 inches long. A decoction of the thorns is used as a remedy for vesical inflammation, etc. On mesas and hillsides at Guaymas. (101.)

Acacia Farnesiana, Willd. "Binorama"; the pods are used for dyeing black and for making ink, and an ointment is made of the flowers for the cure of headache. About Guaymas. (305.)

Lysiloma microphylla, Benth. A rather stiff shrub, 6 feet high. In mountain cañons at Guaymas. (640.)

Calliandra Coulteri, Watson. A loose shrub, 5 feet high. Mountains about Guaymas. (297.)

Calliandra eriophylla, Benth. A stiff shrub, in high mountain ravines. Guaymas. (293.)

Pithecolobium (Ortholobium) Sonoræ. A shrub or small tree (15 or 20 feet high), armed with short stout recurved stipular spines, the foliage, inflorescence, and younger branches canescent with very short spreading pubescence: pinnæ 1 or 2 pairs on a short (1 or 2 lines) or very short rhachis; leaflets 10 to 15 pairs, oblong-elliptical, about a line long: peduncles mostly solitary (1 to 3) in the axils, 6 lines long or less; heads loose: flowers white, fragrant, finely pubescent, nearly 2 lines long: pods rather thin, short-stipitate, flat, straight, dehiscent, puberulent, 2 to 4 inches long by 6 to 9 lines wide, 3–6-seeded. — "Uña de gato"; wood very hard and taking a fine polish. Common at Guaymas, and at Loreto and Muleje. (58.)

Rhizophora Mangle, Linn. On a low island in Guaymas harbor. (342.)

Jussiæa octonervis, Lam. Guaymas. (257.)

Œnothera cæspitosa, Nutt. On stony ridges near Los Angeles Bay. (582.)

Œnothera (Sphærostigma) angelorum. Annual, from nearly acaulescent to a foot high or more; stems slender, glabrous: leaves more or less finely pubescent, narrow, pinnatifid nearly to the midnerve, the linear divaricate lobes mostly entire: flowers axillary, bright yellow, about 9 lines broad: capsule very slender (1 to $1\frac{1}{2}$ inches long or more, by half a line wide), becoming more or less curved. — Of the *Œ. bistorta* group. Abundant in sandy valleys and on ridges near Los Angeles Bay. (519.)

Œnothera cardiophylla, Torr. A form with very small flowers. S. Pedro Martin Island and Los Angeles Bay. (403, 520.)

Gaura parviflora, Dougl. At Muleje. (11.)

Petalonyx linearis, Greene. On S. Pedro Martin Island and at Los Angeles Bay. (411.)

Sympetaleia rupestris, Gray. (*Loasella rupestris*, Baill.) With the habit of *Eucnide:* leaves round-cordate, sinuately toothed and rather obscurely 5–7-lobed, 3 inches broad or less: corolla cylindrical, 4 to 6 lines long, yellow below, dark green above, the erect lobes broadly oblong, the tube appendaged within near the base by a dense ring of hairs; calyx-lobes narrowly oblong, shorter than the tube of the corolla: stamens very numerous, covering the upper half of the tube, the uppermost filaments stout, green and erect, the lower shorter and slender: capsule subglobose, truncate, 3 lines long, opening by 5 valves at the summit: seeds minute, linear-oblong. — Doubtless the species from Guaymas described by Baillon. The corolla-lobes are imbricate and the anthers 1-celled as in *S. aurea*, which differs especially in its yellow corolla with narrow tube and the lobes of the spreading limb rounded. In the shade of rocks near the shore on islands in Guaymas harbor, "and at Los Angeles Bay." (325.)

Eucnide cordata, Kell. Described as 5 feet high, reclining upon rocks, with white flowers. Mountains about Guaymas and Los Angeles Bay. (341.)

Mentzelia multiflora, Nutt. Los Angeles Bay. (591.)

Mentzelia adherens, Benth. Summit of S. Pedro Martin Island and at Los Angeles Bay. "Commonly called *pega-pega;* it sticks to everything." (402.)

Passiflora fœtida, Linn. Fruit edible. Guaymas. (91.)

Cucurbita cordata. Root long and large: pubescent throughout with a dense rigid strigose pubescence, mostly reflexed except on the leaves: leaves broadly cordate in outline, 2 to 4 inches wide, 3–5-lobed nearly to the middle with narrow sinuses, the lobes coarsely and obtusely toothed; tendrils short, glandular-tipped: flowers solitary, on peduncles 1½ inches long, the corolla 2 inches long: ovary pubescent, subglobose: fruit globose, 3 inches in diameter, smooth, green with about 10 whitish longitudinal lines: seeds white, 4 or 5 lines long. — The fruit resembles that of *C. palmata*. Sandy plains near Los Angeles Bay. (584.)

Apodanthera (?) Palmeri. Stems prostrate, from large long white roots, glabrous or slightly scabrous on the angles: leaves thin, rather thinly strigose-scabrous on both sides, round-cordate in outline, 1½ to 2½ inches broad, 5-lobed to the middle or deeper, with open sinuses, the lobes acutely toothed; tendrils mostly bifid: male flowers racemose on long slender pedicels; calyx-lobes linear, 3 lines long,

equalling the tube; petals 15 lines long; authers much curved: fertile flowers on sleuder peduncles 1 to 1½ iuches long: ovary oblong, thiuly pubescent; fruit 1½ inches long, broadly ellipsoidal, abruptly attenuate at base, very shortly beaked, smooth, with green markings; rind thin; placentas 4 (or sometimes 5?), distiuct, pulpy, many-seeded: seeds brown with whitish margin, 3 lines long. — Apparently diœcious; differing from the genus in the number and distinctness of the placentas. Fruit edible, with the taste nearly of muskmelon, ripening in September. Plains about Guaymas. (282.)

Maximowiczia Sonoræ. Climbing, glabrous throughout, the large root projecting above ground: leaves 4 inches broad or less, twice 3-cleft nearly to the base, with broad sinuses, the lobes coarsely sinuate-toothed: male flowers racemose, short-pedicellate, the calyx-tube cylindrical, 3 lines long; petals pubescent, villous within, bifid: fertile flowers ou peduncles 2 or 3 lines long: ovary ovate, long-attenuate above; fruit ovate, abruptly stout-beaked, "amber-colored," 1¼ to 1½ inches long, smooth with a thick fleshy rind; placentas many- (about 14-) seeded: seeds "covered with a red pulp," compressed, rough-coated excepting the smooth margin, obovate or oblong-obovate with a broad base, 3 lines long or more. — This species much resembles *M. Lindheimeri*, but the leaves are more dissected and the ovary and fruit more attenuate above, and the seeds though decidedly turgid in the young fruit become compressed and are peculiar in their generally very rugose-tuberculate surface. The green fruit is described as having about 10 longitudinal rows of white dots. A decoction of the root is used as a cathartic. About Guaymas, and known as "guarequi." (283.)

Echinopepon insularis. Annual, finely and rather softly pubescent, or glabrate: petioles not pilose; leaves broadly cordate, 1½ to 3 inches broad, 5-lobed nearly to the middle, the short triangular lobes acute, finely and acutely toothed, the sinuses acute: male flowers in narrow panicles mostly exceeding the leaves; corolla 5-cleft, 1½ to 2 lines broad; anthers sigmoid, horizontal; pistillate flowers solitary in the same axils, on slender peduncles 3 or 4 lines long; ovary obliquely oblong-ovate, subpubescent, echinate, attenuate and naked above; fruit subglobose after the falling of the beak, about 4 lines in diameter, covered with stiff straight spines ½ line long, firm and spongy within, 1-celled, 1-seeded: seed ascending, smooth, oblong-obovate, subcompressed with a broad flat base, 2 lines long, dark. — The ovary appears to have an upper cell with an abortive ovule. Common on S. Pedro Martin Island. (409.)

Echinopepon Palmeri. Annual; stems glabrous: petioles not pilose; leaves thin, very minutely scabrous above, nearly glabrous beneath, broadly cordate, 1 to 2 inches broad, 5-lobed to beyond the middle with rounded sinuses, the subrhombic lobes acute and somewhat setosely apiculate, sparingly denticulate: male flowers in narrow panicles mostly exceeding the leaves; corolla 5-lobed to below the middle, 1½ to 2 lines broad; anthers sigmoid; pistillate flowers solitary in the same axils, on filiform peduncles 3 or 4 lines long; ovary very oblique, glabrous, the naked slender beak longer than the echinate base: fruit without the beak about 2½ lines long, covered with stout straight spines ¾ line long, 1-celled, 1-seeded: seed ascending, compressed, 2 lines long. — In the shade of overhanging rocks in the mountains about Guaymas. (304.) This and the preceding species, with *E. Bigelovii*, *E. parviflora*, and *E. minima*, form a well marked group in Naudin's genus *Echinopepon*, which genus should in my opinion be restored.

Cereus Pringlei, Watson. "Cardon"; forming a forest on the summit of S. Pedro Martin Island. The dead wood is much used for fuel and other purposes, and the seedy fruit is an article of food. It attains an average height of 25 feet (sometimes reaching 35 feet), with a circumference below the branches of 6 or 7 feet. (418.)

Opuntia ——? Of the *O. prolifera* group, but the specimens are without flowers or fruit. About 4 feet high, much branched and very spiny, the joints of the specimens 1 to 1½ inches long, with the areolæ of the tubercles terminated above by a dense tuft of spiny bristles 2 lines long; spines 3 to 7, vaginate, the longer 9 to 12 lines long. — "Choyer"; common on S. Pedro Martin Island. (419.)

Trianthema monogyna, Linn. Glabrous and stems red: sepals very shortly cuspidate: stamens 10: crest of the capsule 2-parted. — Common in some gardens at Guaymas. (155.)

Trianthema monogyna, Linn., var. (?) Glabrous and green throughout or pubescent: sepals long-cuspidate: stamens usually 5: concave crest of the capsule entire. — Apparently distinct from the last, but the species as represented in the Gray herbarium is very variable. Very common in gardens at Guaymas. (153, 156.)

Mollugo verticillata, Linn. In the mountains about Guaymas. (255.)

Mollugo Cerviana, Ser. Common in sand and on high gravelly mesas, Guaymas. (184.)

Portlandia pterosperma. A shrub or small tree, 2 to 10 feet high: leaves thin, rhombic-ovate to oblong, acute or subacuminate,

cuneate at base, glabrous or usually pubescent on the margin and rather short slender petiole, 2 or 3 inches long; stipules broadly triangular: peduncles solitary in the axils, bracteolate, 6 to 9 lines long: calyx-lobes very narrow, 6 to 9 lines long; corolla white, funnel-form, 2½ inches long, the tube pubescent within, the limb nearly two inches broad; filaments 6, pilose only near the base, the anthers (8 lines long) equalling the corolla: capsule oblong, angled, 9 lines long: seeds ascending, very thin and broadly winged, 4 lines long. — Peculiar in the thin leaves and very broadly winged seeds: flowers large and handsome, abundant, pendent, and very fragrant. The capsule is tardily dehiscent septicidally, as in other species. In deep cañons near Guaymas. (298.)

Randia Thurberi. An upright shrub, 6 or 8 feet high, armed with slender spines, the young branches canescent with fine spreading pubescence: leaves obovate, attenuate to a short winged petiole, obtuse or retuse, 6 to 15 lines long, finely pubescent or glabrate: calyx less than a line long: fruit globose or ellipsoidal, axillary, sessile or nearly so, 8 or 9 lines long, the pericarp thin-crustaceous: seeds numerous (about 20) in black pulp. — "Papachi"; the fruit eaten by the Indians. In ravines about Guaymas; first collected by Thurber on the hills between Rayon and Ures, Oct., 1851. (229.)

Randia obcordata. An upright bush, 6 or 8 feet high, armed with stout spines and very leafy: leaves obovate or mostly obcordate, attenuate to a very short petiole, finely puberulent or glabrate, 9 lines long or less, much exceeding the internodes: calyx deciduous: fruit sessile in the axils, globose, 3 or 4 lines in diameter, black, 2–4-seeded. — On high gravelly mesas near Guaymas. (648.)

Genipa echinocarpa, Gray. A thorny shrub, 8 feet high; flowers "orange-yellow," fragrant. About Guaymas. (106.)

Galium stellatum, Kell. Mountain-sides, Los Angeles Bay. (525, pistillate; 526, staminate.)

Hofmeisteria crassifolia. Suffruticose (?) with brittle branches, glabrous: leaves alternate, very fleshy, linear, once or twice pinnatifid with 1 to 3 pairs of linear divisions, 1 or 2 inches long: peduncles long, naked, mostly solitary; involucre broadly campanulate, of very numerous linear acuminate bracts; receptacle broad, strongly convex, naked: flowers very numerous; corolla white, very narrow, 1½ lines long: style-branches elongated, much exserted: pappus of 5 scabrous setæ nearly equalling the corolla and 3 or 4 intermediate on each side, short, unequal, and rigid. — In crevices of rocks in the high mountains about Guaymas; flowers very fragrant. (309.)

Hofmeisteria pubescens. Herbaceous, rather fleshy, pubescent with short spreading somewhat scurfy hairs, the stout branches opposite or in threes: leaves alternate, broadly ovate in outline, 3-parted with segments deeply lobed or toothed, 6 or 8 lines long or less, the stout petiole much longer: peduncles solitary, elongated (6 to 10 inches long), bracteate with several scattered very narrowly linear bracts; heads campanulate, very many flowered, ½ inch high, with numerous linear setaceously acuminate bracts and a convex naked receptacle: corolla white, very narrow, the cylindrical throat as long as and little broader than the tube: pappus of 2 hispidulous setæ longer than the corolla and 2 broad irregularly fimbriate paleæ. — At Muleje, in rounded masses on hillsides and stony ridges. (422.)

Malperia* tenuis. Slender, a foot high with ascending branches, slightly scabrous: leaves narrowly linear, entire or occasionally with a few teeth, subacuminate, 1 or 2 inches long or less: heads ½ inch high, narrowed at base, the short outer bracts descending upon the peduncle: corolla (apparently white) very slender, rather contracted at the throat: the short stigmas scarcely at all exserted: achenes slightly hispid on the angles. — Abundant on stony ridges near Los Angeles Bay. (567.)

Eupatorium sagittatum, Gray. Growing 8 feet high, over bushes and hedges; flowers lilac. Guaymas. (87.)

Brickellia Coulteri, Gray. Guaymas, by garden fences. (62.)

Brickellia floribunda, Gray, var., with the inflorescence reduced to a terminal sessile compound cyme, and the achenes more pubescent. Shrubby, 3 to 5 feet high, under overhanging rocks on an island in Guaymas harbor. (322; 323, with entire leaves.)

Gutierrezia Euthamiæ, Torr. & Gray. Los Angeles Bay. (533.)

Aplopappus spinulosus, DC. Foothills; Los Angeles Bay. (539.)

Bigelovia diffusa, Gray. Compact, 3 feet high. In saline localities near the beach at Guaymas. (212, 212½.)

* MALPERIA, a new genus of *Ageratea*. Head several-flowered. Involucre narrowly turbinate, of several rows of very unequal thin narrow nerved bracts. Receptacle naked, flat. Corolla narrow, the throat not dilated, the short lobes erect. Anthers with ovate obtuse appendages. Style-branches short, filiform, truncate, included. Achenes pentagonal, slender. Pappus of 3 hispidulous setæ as long as the corolla, wing-margined at base, and 3 or 4 broad truncate erose paleæ. — An erect annual, with narrow sessile and mostly entire leaves, and the heads solitary or subcorymbose on short peduncles. Near *Hofmeisteria*, but very different in habit.

Bigelovia veneta, Gray, var. (?), with small heads and the leaves mostly entire, somewhat pubescent. On an island in Guaymas harbor. (334.)

Psilactis Coulteri, Gray. In waste places at Guaymas. (99.)

Aster frutescens. Shrubby "with very compact rounded top," with gray stem and branches, the herbaceous portion glandular-scabrous: leaves oblong-obovate to oblanceolate, an inch long or less, the lower attenuate to a narrow base, the upper sessile by a broader or somewhat clasping or even subcordate base, coarsely spinulose-dentate, rather rigid and conspicuously reticulate, sparingly glandular-scabrous: heads solitary and terminal on the leafy branchlets, large (5 or 6 lines high); bracts of the involucre loosely imbricated, linear, narrowly acuminate, the green tips somewhat spreading; rays "lilac," about 20, rather short; achenes canescent with subappressed hairs, nerved, subcompressed; pappus whitish. — A species of peculiar habit, most nearly related to the section *Megalastrum*, but the heads smaller and not naked-pedunculate. On a stony ridge near Los Angeles Bay. (513.)

Baccharis sarothroides, Gray. "Yerba del pasmo"; the twigs are used as a remedy for toothache. Rarely over 2 feet high. San Pedro Martin Island. (414, 415.)

Pelucha* trifida. A much branched and leafy shrub, about 3 feet high, canescent with a thin fine close tomentum: leaves linear with a broader obtusely 3-toothed or usually 3-cleft summit, 6 to 9 lines long: heads about 2 lines high, mostly 10–15-flowered: achene hispid. — On San Pedro Martin Island, in crevices of rocks near the sea. (407.)

Lagascea decipiens, Hemsl. A compact shrub, 4 feet high. Mountain ravines above Guaymas. (256.)

Franseria ambrosioides, Cav. At Muleje and Guaymas. (21.)

Franseria ilicifolia, Gray. Stems herbaceous, 1½ feet high. Ravines near Los Angeles Bay. (578.)

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* PELUCHA, a new genus of *Plucheineæ*. Heads discoid, rather few-flowered, homogamous, the flowers all perfect or some sterile. Involucre of two rows of nearly equal linear herbaceous bracts. Receptacle naked. Corolla slender, slightly dilated upward, very shortly toothed. Anthers very narrowly sagittate at base. Style-branches narrow, or the style sometimes undivided. Achene small; pappus rigid, seabrous. — Shrubby, very heavy scented, tomentulose, with alternate 3-fid leaves and small heads in terminal cymes. Closely allied to *Blumea* and *Pluchea*. The specimens are not in very good condition, but a careful study of the material leaves little doubt of the distinctness and tribal position of the genus.

Franseria dumosa, Nutt. Common on foothills about Los Angeles Bay, growing 1½ to 2 feet high. (559, 564.)

Franseria tenuifolia, Gray. "Istafiate"; a remedy for liver complaints, used by filling the shoes with its leaves. Muleje. (10.)

Eclipta alba, Hassk. High in the mountains above Guaymas. (220.)

Viguiera laciniata, Gray. Compact, suffrutescent, 2 feet high. Abundant on the mountains about Los Angeles Bay. (529.)

Viguiera Parishii, Greene, — which may be a variety of *V. deltoidea*. A form with more numerous heads. About 3 feet high, forming large bunches in the cañons above Los Angeles Bay. (530.)

Helianthus annuus. Muleje. (6.)

Encelia farinosa, Gray. The stems exude a resin which is used as incense in the churches. Ravines about Guaymas. (111.)

Verbesina (Pterophyton) Palmeri. Suffruticose, forming large bunches 3 or 4 feet high, scabrous throughout; stems not winged: leaves opposite, the upper alternate, triangular or rhombic-ovate, more or less abruptly contracted to a broadly winged auriculately clasping petiole, acute, repandly few-toothed or entire, 3 inches long or less: heads loosely panicled, on slender peduncles, about ½ inch high; inner bracts thin, erect, linear, acute or acuminate, the outer herbaceous, spatulate-oblong, obtuse, somewhat spreading: rays about 10, neutral, 4 or 5 lines long: achenes obovate, puhescent or some only glandular-scabrous, the thin wing ciliate; awns 2, erect or spreading, equalling the corolla. — In cañons above Los Angeles Bay. (528.)

Leptosyne parthenioides, Gray. With the foliage of *Coreocarpus parthenioides*, Benth., as figured in Bot. Sulphur, but the achenes mostly narrow and nearly wingless, the lobed margin only rarely distinctly developed. *L. heterocarpa* is with little doubt a form of this species with the lobed margin of the achene in most cases prominently developed. Near a waterfall high in the mountains above Guaymas. (299.)

Leptosyne parthenioides, var. dissecta. (*L. dissecta*, Gray; *Acoma dissecta*, Benth. in Bot. Sulphur. t. 17.) With the more dissected foliage of Bentham's figure, the achenes rather broader than in the last, the margin either entire or lobed. It would seem that the three species that have been described should probably be considered as forms of one, with very polymorphous achenes. — Shady mountain-sides near Los Angeles Bay. (660.)

Lapiiamia (?), sp. Foliage only of a shrubby composite, 2 feet high, much resembling *L. insularis*, but the pubescence different. Common over the summit of San Pedro Martin Island. (406.)

Perityle Californica, Benth. Abundant about Los Angeles Bay and around the old French fort at Guaymas. (562.)

Perityle deltoidea. Annual, low and slender, minutely pubescent: leaves ovate-deltoid, coarsely and somewhat irregularly toothed, an inch long or less, exceeding the petioles: peduncles an inch long or less; heads 2 or 3 lines high, the bracts linear, acuminate: flowers yellow; ligule linear-oblong, 2 lines long: style-appendages linear, flattened, obtuse, not hispidulous: achenes a line long, shortly ciliate, the crown of very short bristles; awn solitary, as long as the disk-corolla, strongly hispidulous. — With the habit of *P. microglossa*. Common in the shade on mountains and hillsides about Los Angeles Bay. (568.)

Perityle Palmeri. Of the *P. leptoglossa* group; a low perennial (?) with herbaceous succulent brittle stems, glandular-villous when young, becoming finely pubescent or subglabrate below: leaves thin, broadly ovate, acute, subcordate at base, very acutely lobed and toothed, the petiole equalling or exceeding the blade (1 or 2 inches long): peduncles 1½ to 3 inches long; heads 4 or 5 lines long, the bracts very narrow, acuminate: flowers golden yellow; ray 4 lines long: achenes strongly ciliate, a line long, the prominent crown deeply fimbriate, the hispidulous awn equalling the disk-corolla. — In crevices of bare but shaded rocks; Guaymas. (308.)

Riddellia Cooperi, Gray. Mountains about Los Angeles Bay. (538.)

Palafoxia linearis, Lag. Sandy plains; Los Angeles Bay. (581.)

Porophyllum gracile, Benth. Hillsides near Los Angeles Bay. (555.)

Porophyllum Seemanni, Schultz Bip., var., with larger heads of white flowers. "Mara villa"; used for headache. Crevices of exposed rocks high in the mountains about Guaymas. (279.)

Porophyllum crassifolium. Suffruticose, much branched and compact: leaves somewhat fleshy, linear, attenuate at base, gland-tipped and often setosely apiculate, ½ to 1 inch long or often less: heads terminal on the short stout branchlets; bracts broad, obtuse, 3 or 4 lines long, the yellowish flowers nearly twice longer: achenes 1½ lines long. — Apparently near *P. tridentatum*, Benth., from Magdalena Bay, but the leaves are wholly entire and the flowers are much longer

than the involucre. Muleje, on rocky hills and on sandy beaches near salt water; also collected by Dr. Palmer in 1870 on Carmen Island. (423.)

Nicolletia Edwardsii, Gray. Annual; ray white with a reddish stripe on the outer side. Common on sandy plains and stony ridges at Los Angeles Bay. (469.)

Dysodia porophylloides, Gray. Mountain-sides, Los Angeles Bay. (531.)

Pectis prostrata, Cav. In gardens at Guaymas. (145.)

Pectis angustifolia, Torr. The awnless form. Ravines near the beach; Los Angeles Bay. (657.)

Pectis (Pectothrix) Palmeri. Closely resembling *P. papposa*, but the solitary setæ at the base of the leaves more slender, the peduncles longer (1 or 2 inches), the longer hairs upon the achenes straight and slightly thickened upward (not at all uncinate or capitate), and the pappus merely scabrous (not barbellate). — Hillsides near Guaymas. (652, 653.) What may perhaps be a form of this with the pappus reduced to an irregular subfimbriate margin was collected on a rocky island in Guaymas harbor. (655.)

Pectis Coulteri, Gray. Low and diffuse, somewhat viscid-pubescent, with leaves an inch long or less. — In gardens at Guaymas and on islands in the harbor. (143, 654.)

Pectis punctata, Jacq. In sandy ravines and high upon the mountains about Guaymas. (224, 656.)

Trichoptilium incisum, Gray. Stony ridges at Los Angeles Bay. (563.)

Bebbia juncea, Greene. Flowers yellow, very fragrant. Sandy ravines at Muleje and Guaymas. (22.)

Peucephyllum Schottii, Gray. A shrub, 3 or 4 feet high. Stony ridges at Los Angeles Bay. (587.)

Senecio Lemmoni, Gray. Mountain-sides near Los Angeles Bay. (577.)

Perezia Palmeri. Tall and branching, green and minutely glandular-pubescent throughout: leaves thin, oblong-lanceolate, acuminate, sessile and cordate at base, very acutely dentate and denticulate, 6 inches long by 2 wide or smaller: heads few on the branchlets, pedunculate, ½ inch long, many-flowered; involucre campanulate with thin acute bracts, the lower ovate and subacuminate: flowers "lilac": achenes glandular-puberulent. — To be grouped with *P. patens* and *P. carpholepis*. On mountain-sides near Los Angeles Bay; rare. (527.)

TRIXIS ANGUSTIFOLIA, DC., var. LATIUSCULA, Gray. A very compact shrub, 2 or 3 feet high, common upon the summit of S. Pedro Martin Island. (408.)

LOBELIA SPLENDENS, Willd. Near a waterfall in the mountains above Guaymas. (301.)

JACQUINIA PUNGENS, Gray. "San Juanico"; a small evergreen tree, 12 to 15 feet high, the wood useless even for fuel. The globose fruit is 8 or 9 lines in diameter, the seeds several, oblong-peltate, imbedded or enclosed in the resinous-waxy placenta. The flowers are used by the Indians to give a durable yellow color to the palm-leaves used in making baskets, etc., and they are also strung like beads and worn for ornament. About Guaymas. (69.)

SIDEROXYLON LEUCOPHYLLUM. A small tree, 5 to 8 feet high and sometimes a foot in diameter: leaves finely white-tomentose on both sides, oblong-elliptic or -lanceolate, obtuse or acutish, subcuneate at base, short-petiolate, 2 inches long or less: flowers rather crowded in the axils on short pedicels, 5-merous; calyx tomentose, campanulate; corolla greenish yellow, $2\frac{1}{2}$ lines long: staminodia petaloid, entire, broadly lanceolate, equalling the corolla: ovary densely villous. — The fruit was not collected. The wood is hard, burning with much smoke. In deep cañons near Los Angeles Bay. (516.)

VALLESIA DICHOTOMA, Ruiz & Pavon. A large evergreen bush with white fruit, which is eaten by children, and its juice is used for inflammation of the eyes. This specific name is adopted as the oldest in the genus, in preference to the later *V. glabra* of Link. The species so named that is found in Florida and the West Indies appears to have longer pedicels, a larger calyx, a longer corolla with longer narrowly oblong lobes, and the leaves oblong rather than lanceolate. — In garden hedges and sandy ravines about Guaymas and Muleje. (32.)

HAPLOPHYTON CIMICIDUM, A. DC. High in the mountains about Guaymas. (228.)

PHILIBERTIA LINEARIS, Gray, var. HETEROPHYLLA, Gray. Flowers creamy white; fruit 3 inches long. At Muleje and Guaymas. (5.)

PHILIBERTIA PAVONI, Hemsl. Climbing, 5 to 6 feet high; leaves very white-tomentose beneath; flowers white. The same as 340 Palmer, 1886. In ravines at Guaymas. (195.)

ASCLEPIAS SUBULATA, Decaisne. "Yumete"; the juice an active emetic. Common in dry arroyos about Guaymas. (57.)

ASCLEPIAS ALBICANS. Erect, 4 feet high, white-puberulent: leaves verticillate in threes, very narrowly linear, mostly deciduous: umbels short-pedunculate, many-flowered, pubescent, the pedicels half an inch

long: lobes of the greenish corolla tinged with brown, narrowly oblong, acute, nearly 3 lines long; column short; hoods yellowish, shorter than the anthers, somewhat thickened dorsally and bluntly beaked, the sides subquadrate and the nearly straight subulate spur scarcely exserted: follicle erect on the erect pedicel, 4 inches long, smooth. — In rocky ravines near Los Angeles Bay. (588.)

Metastelma Pringlei, Gray, var. (?), with longer and acuter calyx-lobes and the filiform lobes of the crown somewhat shorter; flowers yellow. — Hillsides near Guaymas. (626.)

Metastelma albiflora. Glabrous or nearly so; stems twining, 4 feet long: leaves petiolate, narrowly oblong to linear, short-acuminate, 6 to 10 lines long: flowers white, in sessile fascicles, the pedicels very short: calyx-lobes narrowly linear, acuminate; corolla a half longer (nearly 2 lines), densely villous within, the lobes narrowly lanceolate; crown of 5 very narrow and attenuate scales attached to the very short column and equalling the distinct corneous cuneate-obcordate anthers; appendage of the anthers oblong. — Exposed cliffs near Guaymas. (223.)

Pattalias* Palmeri. Stems slender, several from a rather thick branching rootstalk, slightly puberulent or glabrate, a foot long or more: leaves very narrow, 2 inches long or less, sessile, acute: flowers (2 to 6) yellow, on pedicels 1 or 2 lines long or less: corolla 2 lines long, twice longer than the calyx: lobes of corona ovate, attached to the column at the base of the anthers, lanceolate, acute, half the length of the stout conical beak: follicle 4 inches long by 3 lines broad, narrowed at base and long-attenuate above. — Near a sandy beach at Muleje. (424). — A second species of this genus is *P. angustifolius*, a Sonora plant doubtfully referred by Dr. Torrey in the Mexican Boundary Report to *Metastelma*, and more recently by Dr. Gray to the extra-tropical South American genus *Melinia*. It is of similar habit, but has petiolate leaves, a longer calyx, the crown at the base of the column, the anther-tips much more conspicuous, and the beak of the stigma narrow and columnar.

* PATTALIAS, a new genus of the *Asclepiadaceæ*, of the *Metastelma* group. Calyx 5-parted, the lobes narrow, acuminate, eglandular. Corolla becoming open-campanulate, 5-parted, narrowly convolute in the bud, naked, the lobes lanceolate. Crown of 5 distinct fleshy entire lobes inserted upon the short column, exceeding the short anthers. Stigma surmounted by a prominent conical or columnar entire beak, exceeding the membranous erect tips of the anthers. Follicles smooth, slender. — Low twining herbaceous perennials, with narrowly linear opposite leaves, and small flowers shortly pedicellate in an axillary nearly sessile umbel.

Rothrockia cordifolia, Gray. In shady ravines, etc., about Guaymas. (213.)

Himantostemma Pringlei, Gray. In an orange grove at Guaymas. (318.)

Marsdenia edulis. Stem frutescent, with corky bark when old, climbing: leaves rather thick, undulate, ovate-lanceolate, acuminate, rounded at base, glabrous, 1 to 4 inches long, petiolate: flowers in a nearly sessile simple or compound umbel, the calyx and short pedicels pubescent: calyx-lobes ovate, acutish; corolla cream-color, rather fleshy, 2½ lines long, cleft to the middle, the throat very villous: lobes of the crown subulate-acuminate, a little shorter than the tall conical bifid summit of the stigma: fruit ovate, obtuse, smooth, 3 inches long; seeds suborbicular, 3 lines long. — "Talajote"; the green fruit is eaten. On sandy saline mesas near salt water, Guaymas. (150, 658).

Gilia (Eugilia) Palmeri. Annual, erect and branched, somewhat pubescent with floccose tomentum especially in the axils, a foot high: leaves alternate, very narrowly linear, entire, pungent, 1½ inches long or less: pedicels scattered, about an inch long: corolla "violet," 5-parted, the spreading lobes oblanceolate, acute and denticulate, 5 lines long, the calyx half as long: filaments very slender and anthers small: capsule oblong, equalling the calyx; cells several-seeded. — Near *G. rigidula*. On stony ridges near Los Angeles Bay. (593.)

Ellisia chrysanthemifolia, Benth. Shady mountain-sides near Los Angeles Bay. (580.)

Phacelia crenulata, Torr. A small-flowered form. Stony ridges at Los Angeles Bay. (592.)

Phacelia (Eutoca) pauciflora. Annual, setosely hispid, lax and very slender, a foot high or more: leaves (except the uppermost) pinnately divided, the oblong segments pinnatifid: flowers few, shortly pedicellate in a short loose simple or geminate raceme: calyx-lobes setosely hispid, linear-oblanceolate, 2 becoming 4 lines long, equalling the corolla (scarcely 3 lines long); appendages narrow and united at base over the filament: stamens and style included, the style cleft to the middle: capsule ellipsoidal, obtuse, 2 lines long, 8-seeded. — Technically of the *Eutoca* section, but closely related to *P. hispida*. On mountains near Los Angeles Bay. (583.)

Cordia Greggii, Torr., var. (?) Palmeri. Leaves somewhat larger (5 to 9 lines long), ovate-oblong, acute to obtuse, more abruptly cuneate at base on a slender petiole 2 to 4 lines long, and with more

numerous serratures: corolla more broadly funnel-form, the limb 12 to 15 lines broad; calyx-teeth slender, nearly equalling the tube. — A shrub, 5 to 8 feet high, in gravelly ravines about Guaymas. (112.)

Cordia (Myxa § Spiciformes) Palmeri. A shrub, 4 or 5 feet high, the young branches and lower side of the leaves finely pubescent: leaves oblong-lanceolate, attenuate at base, very shortly petiolate, acutish, rather coarsely toothed, scabrous above, 1 to 2½ inches long by 3 to 6 lines broad: spikes pedunculate, loose, tomentulose, 1 to 1½ inches long: corolla 3 lines long, twice longer than the calyx: fruit red, exserted, nearly 3 lines long. — "Yerba del pasmo." In ravines in the high mountains above Guaymas. (281.)

Bourreria Sonoræ. A shrub, about 10 feet high, with stout very leafy branches: leaves very roughly papillose-scabrous above, soft-pubescent beneath, obovate to oblong-spatulate, obtuse or retuse, attenuate to a very short petiole, entire, 1½ inches long or less: flowers few on slender pubescent pedicels 2 to 5 lines long: calyx cleft to the middle, the deltoid lobes acute, half the length of the corolla-tube; corolla greenish yellow, puberulent, 5 lines long, the lobes oblong, acute; filaments glabrous, exserted: fruit black, depressed-globose, 2½ lines broad. — Near a waterfall in the mountains above Guaymas. (289.)

Coldenia* angelica. Annual, prostrate, wide-spreading, somewhat hispid: leaves ovate to rhombic, acute, strigose-hispid on the margin and finely appressed-pubescent, entire or the margin sinuate, irregularly 2–3-nerved each side of the midvein: calyx nearly 2 lines long, the narrowly acuminate hispid lobes nearly twice longer than the tube; corolla "mauve," 3 lines long; filaments slender, adnate nearly to the middle, with a short obtuse prominent appendage at

* Two other species of this genus may be defined as follows: —

C. brevicalyx. White with a close fine pubescence and scarcely at all hispid: leaves very like those of *C. angelica* in form and veining: calyx very short (1 line), the broadish acute lobes shorter than the tube; corolla 2 lines long; filaments slender, slightly dilated below the insertion: nutlet subglobose, much smaller; embryo similar. — Confused with the true *C. Palmeri* as to characters of flower and fruit. On the lower Colorado (Palmer, 1869; *C. Palmeri*, Gray, Proc. Am. Acad. 7. 292, and Syn. Fl., in part); San Bernardino (147 W. G. Wright, 1880).

C. Palmeri, Gray. Limiting the species to the one of Palmer's original specimens which has the leaves "plicate-lineate by about 6 pairs of straight and strong veins," it may be otherwise distinguished by the 5-parted calyx (1½ lines long), the lobes linear and acute. The corolla is 2½ lines long, with the rather stout filaments somewhat dilated below the insertion. The fruit is unknown.

base: nutlet globose, nearly ½ line broad: cotyledons thick, orbicular. — Very common on sandy bottoms near Los Angeles Bay. (517.) A flowering specimen collected by M. E. Jones at San Quentin is probably the same, but is more woody and apparently perennial.

Heliotropium Curassavicum, Linn. Muleje. (15.)

Heliotropium phyllostachyum, Torr. On rocky mesas at Guaymas. (232.)

Krynitzkia angustifolia, Gray. The root was formerly used as a purple dye by the Indians. On stony ridges at Los Angeles Bay. (606.)

Krynitzkia ramosissima, Greene. Stony ridges, Los Angeles Bay. (551.)

Ipomœa coccinea, Linn. Mountain ravines near Guaymas. (310.)

Ipomœa hederacea, Jacq. In ravines near Guaymas. (295.)

Ipomœa leptotoma, Torr. Very common about Guaymas. (231.)

Ipomœa Bona-nox, Linn. River-banks at Muleje. (33.)

Ipomœa triloba, Linn., var., with glabrous calyx. Collected also by Pringle in 1884 in Santa Cruz Valley, Arizona, and by Palmer (213) in 1885 in Chihuahua. In hedges and ravines about Guaymas. (306.)

Ipomœa Palmeri. A vigorous climber, glabrous: leaves digitately divided, on slender petioles, the 5 segments linear-lanceolate, attenuate to each end, obtusish, 1 to 4 inches long: peduncles 1-flowered, 2 to 4 inches long: calyx glabrous, becoming 1½ inches long, the sepals oblong, obtuse, chartaceous in fruit; corolla white, 2 inches long, with broad tube and rather narrow limb: anthers much twisted, a little exserted: stigma biglobose: capsule globose, ½ inch broad, 4-valved, 4-seeded; seeds very finely pubescent. — "Flowers with the odor of Stramonium." Margin of a dry creek-bed near Guaymas. (75.)

Jacquemontia Pringlei, Gray, var. glabrescens, Gray. Flowers "pale blue with white lines." Hills near Guaymas. (294.)

Jacquemontia Palmeri. An erect slender annual, or at length somewhat climbing, simple or branched, a foot high or more, sparingly soft-pubescent: leaves ovate, usually cordate at base, acute, punctate, 15 lines long or much less, rather shortly petiolate: flowers few (1 to 5), scattered on slender peduncles: calyx-lobes ovate-lanceolate, 2 to 2½ lines long; corolla blue, 3 or 4 lines long: capsule globose, equalling the calyx, the four valves splitting equally to the base: seeds somewhat roughened. — In shade in the mountains about Guaymas. (221.)

Evolvulus linifolius, Linn. Mountains about Guaymas. (291.)

Cressa Cretica, Linn. Guaymas, near salt water. (303.)

Cuscuta umbellata, HBK. About Guaymas, upon species of *Boerhaavia*. (173.)

Cuscuta Americana, Linn. With small flowers and entire scales, as in *C. congesta*, Benth., from Acapulco, which is referred to this species. About Guaymas. (331.)

Cuscuta (Eugrammica) Palmeri. Very slender: umbels solitary or in loose fascicles, few-flowered, the pedicels about equalling the flowers: calyx subcampanulate, acutely lobed, about half as long as the corolla-tube; corolla white, persistent, 1½ lines long, the lobes equalling the tube, lanceolate, subacuminate, becoming reflexed: stamens half as long, the filaments rather stout; scales very short, deltoid, fimbriate: styles slender, the longer equalling the stamens: capsule globose, small (¼ line broad), breaking away at base. — At Los Angeles Bay, very common, covering prostrate Euphorbias, etc., and forming sheets several yards in extent. (544.)

Solanum nigrum, Linn., var. nodiflorum, Gray. "Yerba mora"; the young leaves and tops are much used by the Indians in cooking. At Muleje and Guaymas. (9.)

Solanum Hindsianum, Benth. Erect, very thorny, 3 to 6 feet high; flowers light to dark purple. "Perhaps distinct from *S. elæagnifolium*" (Gray). Guaymas. (109.)

Physalis pubescens, Linn. Muleje and Guaymas. (14.)

Physalis angulata, Linn.? Flowers yellow with brown base; fruit edible. About gardens at Guaymas. (622.)

Physalis angulata, Linn., var. Linkiana, Gray. Stem succulent, 3 feet high; flowers "white with green centre"; fruit fleshy and edible. At Guaymas. (175.)

Physalis ——? Resembling an entire-leaved *P. pubescens*, but the pedicels elongated; fruit tinged with purple when ripe, sometimes eaten and used in cooking. Rocky ridges, in shade, at Los Angeles Bay. (561.)

Physalis ——? Prostrate, very finely pubescent, the upper side of the small ovate to rhombic-lanceolate irregularly blunt-toothed leaves nearly glabrous: calyx-teeth deltoid: corolla 6 lines broad, yellow with dark brown centre: anthers yellow: fruiting calyx pubernlent, subglobose with open orifice, 6 to 8 lines long, equalling the pedicel. — Guaymas. (94.)

Physalis ——? Flowers in the dried specimens purplish blue, but described as "drab with wood-colored centre." Under shaded cliffs in the mountains about Guaymas. (621.)

CAPSICUM BACCATUM, Linn. A perennial, 5 feet high, with small red fruit which is sent to San Francisco as "chiltepin peppers." Guaymas. (136.)

CAPSICUM CORDIFORME, Mill., var. GLOBOSUM, Dun.? A cultivated perennial, 6 feet high, with globose orange-colored fruit. Guaymas. (135.)

CAPSICUM ANNUUM, Linn. Various cultivated forms. Guaymas. (137–140.)

LYCIUM RICHII, Torr. Unarmed, 6 to 8 feet high; flowers lilac; fruit edible. Like the type of *L. Palmeri*, Gray. At Muleje. (4.)

LYCIUM RICHII, Torr., var. A very thorny shrub, sometimes 15 feet high; pedicels shorter; flowers "violet"; fruit edible. In alkaline bottoms about Guaymas. (71.)

LYCIUM ANDERSONI, Gray, var. PUBESCENS. A shrub, 4 or 5 feet high, resembling var. *Wrightii*, but finely pubescent, the calyx half a line and the corolla 3 lines long with a very narrow tube; flowers "lavender," tetramerous, the filaments glabrous: berries red. — In stony ravines near Los Angeles Bay. (559.)

LYCIUM BARBINODUM, Miers? A loose shrub, 5 feet high, with black wood, small white flowers, and scarlet fruit. Hillsides and ravines at Guaymas. (230.)

LYCIUM CARINATUM. A thorny glabrous shrub, 1 or 2 feet high: leaves narrowly spatulate, 3 lines long or less, glaucous: pedicels clavate, compressed, 2 or 3 lines long: calyx bifid, the broad acutish lobes carinate; corolla 4-lobed, white, 2 lines long, the tube very short and the throat scarcely as long as the lobes: stamens 4, villous-tufted at the point of insertion, equalling the corolla: fruit said to be red. — "Sal sieso." In large patches near Guaymas. (178.)

LYCIUM? A shrub, 4 feet high, with woolly nodes, very broadly spatulate leaves, and "white flowers." The specimens are without flowers or fruit, and the reference to this genus is only a conjecture. Guaymas. (337.)

NICOTIANA TRIGONOPHYLLA, Dun. At Muleje and on San Pedro Martin Island. (18, 410.)

NICOTIANA CLEVELANDI, Gray. Common at Los Angeles Bay, and used for smoking by the Indians. (556.)

MOHAVEA VISCIDA, Gray. Flowers lemon-color with brown dots, the lower stamens wholly wanting in the flower examined. On stony ridges at Los Angeles Bay. (597.)

ANTIRRHINUM CYATHIFERUM, Benth. (*A. chytrospermum*, Gray.) In gardens at Guaymas. (152.)

Antirrhinum Kingii, Watson, var., with longer pedicels. Collected also in Sonora by Pringle in 1884. Among rocks near Los Angeles Bay. (589.)

Stemodia durantifolia, Sw. Flowers white. Muleje. (25.)

Conobea intermedia, Gray. In dried rocky river-bottoms in the mountains about Guaymas. (241.)

Mimulus moschatus, Dougl. On wet rocks near Guaymas. (664.)

Crescentia alata, HBK. The gourd-like fruit is subglobose, about 4 inches in diameter, 1-celled (as also the ovary), filled by the pulpy parietal placentæ and numerous flattened obcordate seeds (4 lines long). The species appears to be in every respect a *Crescentia*. It is cultivated at Guaymas, under the name of "ayal," for shade and for the medical properties of the fruit, which is filled with water and the liquid afterwards taken as a remedy for contusions and "internal bruises." (85.)

Martynia althæfolia, Benth. Flowers yellow, lined with orange and dotted below with brown. Guaymas. (114.)

Martynia fragrans, Lindl. Flowers honey-scented. In low moist places at Guaymas. (326.)

Martynia Palmeri. Stems herbaceous, prostrate, from a large yellow fusiform root: leaves opposite (the upper alternate), long-petiolate, ovate-cordate, obtuse, the margin sinuate, 1½ inches long or less: inflorescence floccose-pubescent and viscid; pedicels 2 or 3 inches long; bracts at base of calyx ovate, short, becoming thickened and spongy: calyx campanulate, 5-toothed, 4 to 6 lines long, the throat oblique; corolla 1½ inches long, buff with orange and red stripes and the throat dotted with red: stamens 4: seeds irregularly oblong, angled and more or less prominently tuberculate, 3 lines long. — Root resembling a carrot and often weighing 3 or 4 pounds; flowers carnation-scented. The green fruit and the seeds are used for food by the Yaqui Indians. Sandy places at Los Angeles Bay. (599.)

Elytraria tridentata, Vahl. "Cordoncillo"; used as a remedy for fevers, venereal diseases, etc. In shaded places at Guaymas. (285.)

Ruellia tuberosa, Linn. Under hedges at Guaymas. (98.)

Ruellia ——? A shrub, 4 feet high, with glandular-pubescent narrowly ovate leaves (6 to 10 lines long), and 1 to 3 flowers in the axils upon a very short peduncle; bracts very small: calyx-lobes linear, acuminate, 5 or 6 lines long; corolla light purple, 2 inches long, the tube equalling the calyx and the dilated throat longer than

the lobes: stamens unequal: capsule 6 to 9 lines long, acute, 8-seeded. — In moist shaded places on the mesas and in ravines about Guaymas. (196.)

Beloperone Californica, Benth. Shaded spots in the mountains, at Muleje and Guaymas. (16.)

Dianthera Sonoræ. Perennial (?), the herbaceous stems very finely roughish-puberulent, about a foot high: leaves ovate to lanceolate, shortly petiolate, acutish, sparsely pubescent on the margin and veins beneath, 1 or 2 inches long; spikes dense, terminal, sessile, solitary, $1\frac{1}{2}$ inches long or less; bracts imbricated, oblanceolate, acute and mucronate, strongly 3-nerved and ciliate, 4 to 6 lines long: calyx 4-parted, the very narrow attenuate ciliate segments 2 lines long; corolla cream-color, 8 lines long, the straight narrow tube somewhat longer than the limb: anther-cells parallel, nearly equal, separated by a rather narrow connective. — Near a creek in the mountains about Guaymas. (240.)

Jacobinia ovata, Gray, var. subglabra. Branches glabrous and leaves nearly so; flowers in short spikes; otherwise apparently identical with the original of the species. Shrubby, 4 to 6 feet high, the flowers bright scarlet. Mountain ravines near Guaymas. (264.)

Lantana Camara, Linn. A nearly glabrous form. "Confiturea"; used as a preventive of hydrophobia. Plains about Guaymas. (284.)

Lippia (Zapania) Palmeri. Near *L. graveolens;* shrubby, 3 to 5 feet high: leaves ovate to elliptical, the blade decurrent upon the short petiole, obtuse or acutish, rugose, subcrenately toothed, finely substrigose-pubescent, an inch long or often much less: peduncles solitary or in pairs in the axils, very short; heads often few-flowered, 2 to 6 lines long; bracts decussate, the lower united to the middle, the upper distinct: calyx thin, not carinate; corolla salverform. — "Origano"; with a strong sage-like odor and used as a potherb. In arroyos about Guaymas. Flowers white or cream-color (277, 644), or rose-color (643).

Citharexylum (Cacocalyx) flabellifolium. A tall shrub, the younger portions more or less pubescent with short spreading hairs: leaves thin, flabelliform, truncate or rounded above and crenately few-toothed, abruptly contracted to a short petiole, $\frac{1}{2}$ inch long or less: racemes terminal or sometimes axillary, sessile, loosely flowered; pedicels very short: calyx 5-nerved and -angled, acutely toothed, 3 lines long, becoming thin and dilated and loosely enclosing the fruit; corolla dark violet, 6 lines long, the yellowish tube shorter than the calyx, tomentose within, the broadly expanded limb with nearly

equal rounded lobes: fifth stamen anantherous: fruit black, 2 or 3 lines long. — Differing from *Citharexylum* in foliage, in the large violet flowers, and in the calyx enveloping the fruit. The juice of the fruit stains a persistent black. Mountain ravines about Guaymas. (237.)

Bouchea dissecta. Annual, slender, erect, branched, very finely puberulent or glabrate, 2 feet high: leaves thin, petiolate, ovate in outline, pinnately cleft nearly to the rhachis, the narrow segments entire or 1–3-toothed: spikes slender, elongated, nearly sessile, the appressed flowers about equalling the internodes; bracts very small, subulate: fruiting calyx 3 or 4 lines long, narrowly and acutely toothed; corolla white, scarcely exserted: fruit linear, 6 lines long, conspicuously long-beaked. — Peculiar in its dissected leaves. On rocky ridges about Guaymas. (259.)

Vitex mollis, HBK. "Uvalama"; a small tree with fragrant violet-colored flowers and black edible fruit. At Muleje. (3.)

Hyptis Emoryi, Torr., var., with leaves less tomentose. A shrub, 3 to 6 feet high, known as "salvia" and used for seasoning. Sandy bottoms near the beach at Los Angeles Bay. (573.)

Hyptis Palmeri. Shrubby, 6 to 8 feet high, more or less hoary-puberulent throughout: leaves petiolate, lanceolate, rounded or cuneate at base, acute, crenately denticulate or the larger more coarsely toothed, 1 or 2 inches long: flowers in loose umbel-like very shortly pedunculate axillary cymes, the upper nearly naked; pedicels slender, 1 or 2 lines long: calyx narrowly turbinate-cylindrical, white furfuraceous-puberulent (like the pedicel), the slender teeth more than half the length of the tube; corolla lilac. — "Salvia"; used for rheumatism. Common in arroyos about Guaymas. (278.)

Salvia privoides, Benth. At Guaymas. (320.)

Stachys coccinea, Jacq. Near a waterfall in the mountains above Guaymas. (300.)

Plantago Patagonica, Jacq. On stony ridges at Los Angeles Bay. (524.)

Mirabilis tenuiloba, Watson. A foot high or more, with fleshy leaves and white flowers; fruit globose, 2 lines in diameter. Mountains near Los Angeles Bay. (600.)

Mirabilis Californica, Gray. Flowers purple. Mountains, Los Angeles Bay. (601.)

Allionia incarnata, Linn. Guaymas. (100.)

Boerhaavia paniculata, Rich. Rocky ledges at Guaymas. (663.)

Boerhaavia ——? A doubtful species, not in good fruit, between the last and *B. hirsuta*. Common in gardens at Guaymas, widely procumbent (172) or smaller and upright (172½).

Boerhaavia erecta, Linn. Bloom white, becoming pink. High mesas at Guaymas. (182.)

Boerhaavia erecta, Linn., var., with narrow leaves; a common western form. Guaymas. (678–680, 684–687.) Also what is probably an abnormal form of the same. (682.)

Boerhaavia alata. Apparently erect, 2 feet high, much branched, puberulent, reddish: leaves narrowly oblong to linear, or the lower broader, 1½ inches long or less: inflorescence loosely paniculate, the slender pedicels (1 to 3 lines long) solitary or subumbellate: perianth pink, 2 lines long: stamens (5) and style included: fruit nearly 2 lines long, truncate, more or less broadly 5-winged, the wings often broader than the body, narrower below. — On a small rocky island in Guaymas harbor. (332.)

Boerhaavia triquetra. Similar to the last, puberulent and viscid, procumbent: leaves lanceolate, acute or obtusish: pedicels very short (about ½ line): perianth pink, a line long: stamens (2) and style included: fruit a line long, truncate, broadly obpyramidal, very acutely 3–4-angled, the sides rugose. — Allied to *B. pterocarpa*, which has still smaller flowers (½ line long) with 2 or 3 stamens, and a broader-bodied wing-angled fruit attenuate to a stipe-like base. Sandy plains and stony ridges near Los Angeles Bay. (521.)

Boerhaavia Wrightii, Gray. (*B. bracteosa*, Watson.) Flowers "waxy white": distinguished from the following triandrous spicate species by the usually conspicuous thin bracts and the broader fruit, which is obtuse and acutely angled. Los Angeles Bay. (603.)

Boerhaavia Xanti. Annual; stems sparingly branched, somewhat floccose-pubescent and puberulent, or glabrous above, occasionally with viscid spots, 2 feet high or less: leaves ovate to oblong-ovate or the upper narrowly lanceolate, sinuate, obtuse or acute: flowers large, in a rather loose raceme an inch long or less; bracts lanceolate and bractlets linear, acuminate: perianth "white," spreading, 1½ lines long: stamens (4) and style long-exserted: fruit oblong-obovate, obtuse, a line long, rather acutely 5- (4–6-) angled, rugose in the intervals. — First collected by Xantus (n. 93) at Cape Saint Lucas. Sandy mesas; Guaymas. (681.)

Boerhaavia Palmeri. Resembling the last; stems procumbent or ascending, glandular-pubescent nearly throughout: spike-like raceme short and dense in flower, 4 lines long or less, about 6 lines long

in fruit; bracts obovate and bractlets lanceolate, acuminate, ciliate: perianth "white," ¾ line long: stamens (3) and style included: fruit a line long, clavate, obtuse and obtusely-angled, the rather shallow intervals transversely rugose. — Dry sandy soil near Guaymas. (683.) It is also n. 209 of Palmer's collection in 1885, from Hacienda San Miguel near Batopilas, Chihuahua. — B. COULTERI (*Senkenbergia Coulteri*, Hook.) is a similar species, but less glutinous and the loose slender spikes more elongated; bracts and bractlets very narrow; perianth a line long; fruit clavate, 1 to 1½ lines long, truncate, the angles acutish and the channels extending to the very apex. Coulter's specimen (n. 1425) is labelled as from "Mexico." Arizona specimens of Palmer's early collections, 378 Rothrock from Camp Grant, and specimens of Pringle's collection in 1881 from the foothills of the Santa Catalina Mountains appear to be the same.

BOERHAAVIA SPICATA, Choisy, var. (?) PALMERI. Similar to the preceding group; stems procumbent or ascending, finely pubescent: leaves thin, nearly glabrous: flowering racemes open and very slender, becoming 1 or 2 inches long; bracts lanceolate or linear, acuminate; bractlets none: perianth pink, ½ line long: stamens (2) and style included: fruit clavate-oblong, a line long, obtuse and mostly obtusely angled, the channel very narrow and sinuate. — Sandy mesas about Guaymas. (141.) — Typical B. SPICATA, as shown by a flowering and fruiting spike from Pavon's original specimen in Herb. Boissier, which was very kindly loaned me for comparison by M. Barbey, is peculiar in the ovate or ovate-lanceolate acute dark-colored bracts (with a pair of very narrow bractlets at the base of the young fruit), and in the conspicuous brown nerves of the nearly truncate perianth (½ line long). The fruit in the specimen is still young. The stamens are described as solitary, and but one was detected in the first flower examined, though there were two in the second one. I have seen no specimens that correspond to the type. The form of Texas, New Mexico, and Arizona that has been referred to this species is usually more glandular than the var. *Palmeri*, the leaves thickish and scabrous, and the perianth about a line long. It may be distinguished as var. (?) *Torreyana*.

BOERHAAVIA SCANDENS, Linn. An "evergreen, its many weak stems hanging upon bushes and fences, with greenish yellow flowers, and the fruits adherent to everything they touch." Near Guaymas. (146.)

ABRONIA UMBELLATA, Lam. Sandy plains near Los Angeles Bay. (604.)

Cryptocarpus (?) capitatus. A scraggy shrub, 10–15 feet high, with rigid divaricate branches and branchlets, the younger portions finely pubescent throughout: leaves alternate, entire, mostly broadly obovate, obtuse or acutish, cuneate at base, 1 or 2 inches long including the slender petiole (3 to 6 lines long): peduncles solitary, axillary, naked, becoming 6 to 9 lines long, bearing a globose head (4 to 6 lines broad) of cymosely clustered flowers on very short minutely bracteate pedicels; involucre none: perianth cream-colored, turbinate-campanulate, very shortly and obtusely 5-toothed, a line long: stamens 5, distinct, the slender filaments exserted; anthers rounded: ovary obliquely linear-oblong, acute, shorter than the slender included style, attenuate to the base; ovule solitary, sessile, erect; fruit unknown. — A single head of flowers was collected in August, but it appears to be a winter bloomer, as the January specimens show an abundance of imperfectly developed flowers. In most of its characters, so far as known, the plant is certainly closely allied to *Cryptocarpus*. The fruit and fuller flowering specimens may, however, modify the reference. Near Guaymas. (647.)

Achyronychia Cooperi, Torr. & Gray. Los Angeles Bay. (545.)

Amarantus fimbriatus, Benth. Sandy plains near Los Angeles Bay (515), and in gardens at Guaymas (154, in part).

Amarantus venulosus, Watson. Gardens at Guaymas. (154, in part.)

Amarantus Palmeri, Watson. Varying in habit from procumbent or ascending to erect and 5 or 6 feet high, and in the more or less slender or compact spikes, which are often much elongated. It is one of the commonest plants in Sonora and Lower California after the setting in of the rains, in gardens and cultivated fields and in all bottom lands. It is valuable as a forage plant, and the seeds are largely gathered and sold in the markets for making bread and "attole." The collection includes numerous forms. (76–78, 127–134, 312, 675, 676, 688.)

Amarantus Palmeri, Watson, var. (?), with very thin-scarious broad perianth-segments, the midvein scarcely reaching to the apex; seeds rather smaller. — On an island in Guaymas harbor, near salt water, prostrate. (311½.)

Cladothrix lanuginosa, Nutt. Gardens at Guaymas. (157.)

Gomphrena Sonoræ, Torr. Rocky mountain-sides above Guaymas. (252.)

Frœlichia alata, Watson. By irrigating ditches near Guaymas. (245.)

Iresine alternifolia. A shrub, 6 feet high, the young branches finely white-tomentose: leaves often or mostly alternate, thin, ovate or sometimes oblong-ovate, obtuse or acute, truncate or cuneate at base, tomentulose beneath, nearly glabrous or glabrate above, an inch long or less: flowers dicœcious, in mostly broad rather open and nearly sessile panicles 2 to 4 inches long, scattered or subapproximate along the ultimate branches, $\frac{2}{3}$ line long, the staminate pubescent, with very short bracts, the pistillate with smooth and shining bracts. — In the mountains about Guaymas. (276.)

Chenopodium album, Linn. Guaymas. (72, 73.)

Chenopodium ambrosioides, Linn. "Hipasote"; Guaymas. (171.)

Beta vulgaris, Linn. "Acelga"; Guaymas, in old gardens. (115.)

Atriplex elegans, Dietr. Upright, 3 feet high. Guaymas. (117, 122.)

Atriplex Barclayi, Dietr. Though varying somewhat in habit, as well as in fruit, the specimens are apparently all to be referred to one species, which is very probably the same as the little known *A. Barclayi* from Magdalena Bay on the Pacific side of the peninsula. The specimens from about the gardens at Guaymas are noted as growing 2 or 3 feet high. Those from the beach and islands of the harbor are low, and evidently sometimes perennial. (118, 119, 670, 677, pistillate; 123, 673, 674, staminate.)

Atriplex linearis. Dicœcious, woody at base, 1 to 8 feet high, much branched, the branches slender: leaves canescent, narrowly linear, $\frac{1}{2}$ to 2 inches long, attenuate to the base: staminate flowers in mostly small globose clusters in slender spikes bracteate below; pistillate flowers in similar spikes, sessile or shortly pedicellate, solitary or somewhat clustered, the bracts 2 or 3 lines long in fruit, lanceolate with broad free and more or less spreading tips, the sides irregularly tuberculate and developing 4 broad wings, which are more or less deeply toothed or lacerate. — Near forms of *A. canescens*, which is very variable in its fruit but appears never to have the tips of the bracts so large and conspicuous. In alkaline soil about Guaymas. (120, 121, 235.)

Suæda Torreyana, Watson. Very common on sea-beaches and in alkaline soil, in large bunches 2 to 6 feet high. The ashes are used in soap-making. Muleje and Guaymas. (13, 329.)

Spirostachys occidentalis, Watson. Sea-beach at Guaymas. (330.)

PHAULOTHAMNUS SPINESCENS, Gray. A thorny shrub, 10 feet high; fruit a drupe with white fleshy pericarp, the embryo surrounding copious mealy albumen. About Guaymas. (68.)

STEGNOSPERMA HALIMIFOLIUM, Benth. An upright evergreen, 5 or 6 feet high, with fleshy leaves, white flowers, and red pulpy fruit. At Muleje, on the island of San Pedro Martin, and at Guaymas. (31, 400.)

ERIOGONUM INFLATUM, Torr. "Tivinagua"; much used as a remedy for fevers. Muleje and Los Angeles Bay. (24, 574.)

ERIOGONUM FASCICULATUM, Benth. Los Angeles Bay, abundant; 1 or 2 feet high. (549.)

ERIOGONUM INSIGNE, Watson, var., with the small leaves round-ovate instead of reniform, and the sepals broader. On mountains near Los Angeles Bay. (535.)

POLYGONUM PERSICARIA, Linn. High mountains above Guaymas. (211.)

ANTIGONON LEPTOPUS, Hook. & Arn. "San Miguelito"; its long black wiry roots develop large tubers at intervals, which have a pleasant nutty flavor and are an article of food with the Yaqui Indians. About Guaymas. (59.)

ARISTOLOCHIA BREVIPES, Benth., var. ACUMINATA, Watson. "Yerba del Indio"; the root used for aches aud pains. About Guaymas. (174.)

LORANTHUS SPIROSTYLIS, DC.? Leaves narrower than described (2 to 3½ inches long by 2 to 5 lines broad), aud sessile or subsessile. Flowers white and very fragrant; fruit ovoid, 3 lines long, said to be red. About Guaymas, growing on fig, lime, mesquite, and other trees, the stems elongated, rooting or hanging in long tangled masses. (199.)

LORANTHUS (PSITTACANTHUS) SONORÆ. Glaucous and glabrous, the slender stems 3 or 4 inches long: leaves alternate, very narrowly linear or terete, 1 or 2 inches long and less than a line broad: flowers solitary or in pairs, terminating the branchlets, on pedicels 3 lines long or less; ovary a line long, subtended by a very shallow cupule and a short lateral bractlet; perianth scarlet, an inch long, the petals distinct: fruit unknown. — Hillsides and edges of ravines about Guaymas, growing upou *Bursera microphylla*. (287.)

PHORADENDRON FLAVESCENS, Nutt. Guaymas, on *Maytenus phyllanthoides*. (88.)

PHORADENDRON CALIFORNICUM, Nutt. About Guaymas, in large bunches, chiefly upon the thorny mimosas and acacias. (665.)

Pedilanthus macrocarpus, Benth. Growing in large masses, the flowers and fruit bright crimson. A decoction of the plant is used as an active cathartic. Mountains and hills about Los Angeles Bay. (605.)

Euphorbia capitellata, Engelm., var. laxiflora. Differing from the type of the species in the looser cymes, the mostly smaller gland-appendages, the glabrous capsules, and more sparingly toothed leaves. In gardens (83, 142) and high in the mountains (210) about Guaymas. Specimens from a sandy spit in the harbor (317) vary also in having the narrow and narrowly acuminate leaves nearly all entire, the involucres few in the cymes, and the stipules of the floral leaves shorter and less dissected. Pringle's n. 699 of his 1885 collection in Chihuahua, referred doubtfully to *E. pycnanthemum*, belongs rather to this variety of *E. capitellata*.

Euphorbia Brasiliensis, Lam. At Guaymas. (81, 82.)

Euphorbia albomarginata, Torr. & Gray. At Guaymas. (93.)

Euphorbia (Chamæsyceæ) intermixta. Annual, prostrate, glabrous: stipules broadly triangular, entire; leaves more or less broadly oblong or oblong-ovate, obtuse or acutish, obliquely truncate or subcuneate at base, 3 lines long or less, several times shorter than the internodes: involucres solitary in the forks and axils, pedunculate, turbinate-campanulate, $\frac{1}{2}$ line long; glands dark brown, reniform, with a usually conspicuous white or pinkish appendage: capsule glabrous, rather acutely lobed: seeds (immature) pinkish, oblong, angled, smooth. — Near *E. cordifolia* among the *Leiospermæ*. Guaymas. (187, in part; distributed with *E. glyptosperma*.)

Euphorbia trachysperma, Engelm. High mesas about Guaymas. (183, 319.)

Euphorbia Magdalenæ, Benth.? A low glabrous shrub (the branches finely tomentulose), with slender elongated virgate branches: leaves opposite, very shortly petiolate, oblong (2 to 4 lines long), obtuse at both ends, shorter than the internodes (upon the short spurs shorter, broadly elliptical, and exceeding the internodes): involucres solitary, terminal on the spurs, $\frac{1}{2}$ line long, the broad subreniform glands and appendages entire: styles long, 2-parted: fruit unknown. With little doubt the same as Bentham's species from Magdalena Bay, though not fully agreeing with the description. At Muleje, in dry ravines. (26.) Found also by Palmer in 1870 on Carmen Island.

Euphorbia tomentulosa, Watson. With white glands and appendages and green capsules, or pinkish, or dark purple; $1\frac{1}{2}$ to 3 feet high. Mountains; Los Angeles Bay and Guaymas. (216, 536.)

EUPHORBIA SERPYLLIFOLIA, Pers. On gravelly ridges near Guaymas. (187.)

EUPHORBIA SETILOBA, Engelm. Near the beach, Los Angeles Bay. (629.) — About Guaymas. (185, 185½, 634.) The latter a more open form with longer internodes and larger leaves, and the appendages less deeply 3–4-lobed.

EUPHORBIA PETRINA. Near *E. setiloba;* annual, prostrate, much branched and slender, more or less densely pubescent throughout with short spreading hairs: leaves very shortly petiolate, entire, obliquely ovate or oblong-ovate, obtuse, somewhat cordate at base, 3 lines long or usually much less: involucres solitary in the axils, shortly pedunculate, minute, turbinate-campanulate; glands greenish, reniform, unappendaged: capsule (and pedicel) pubescent, ⅓ line long: seeds oblong-ovate, quadrangular, strongly and irregularly 3–4-rugose or -pitted. — Common among rocks at summit of San Pedro Martin Island. (412.)

EUPHORBIA PORTULANA. Of the same group; annual, prostrate, much branched and slender, the minute and sparse pubescence spreading: leaves oblong to broadly elliptical, obtuse at both ends, entire, petiolate, 4 lines long or less: involucres oblong, ¾ line long, nearly glabrous, somewhat contracted above; lobes subulate, slightly ciliate; glands dark purple, the appendages variable in form, often unequal (1 or 2 larger), entire or nearly so, white or pinkish: stamens very few: ovary villous; styles bifid nearly to the middle: capsule subacutely lobed, nearly a line long: seed oblong, tetragonal, very strongly 4–5-rugose. — Island in Guaymas harbor. (321.)

EUPHORBIA GLYPTOSPERMA, Engelm. High gravelly ridges at Guaymas. (187, in part.)

EUPHORBIA POLYCARPA, Benth. Several forms, belonging chiefly to the variety with scarcely appendiculate glands (*E. micromera*, Boiss.). By garden fences at Guaymas and on islands in the harbor (96, 324, 335), and at Los Angeles Bay on sandy bottoms, sometimes covering many yards of surface (632, 633). — Also var. HIRTELLA, Boiss., in like localities at Los Angeles Bay. (630.)

EUPHORBIA FLORIDA, Engelm. In rocky places high in the mountains above Guaymas. (209.)

EUPHORBIA MACULATA, Linn., or near it; the glands unappendaged and capsules glabrous. Abundant in low sandy places about Guaymas. (186.)

EUPHORBIA PEDICULIFERA, Engelm. Stony ridges near Los Angeles Bay. (631.)

Euphorbia pediculifera, Engelm., var. linearifolia. Closely resembling the ordinary form in the characters of the inflorescence and fruit, but erect and branching above the base, the stem and leaves mostly glabrous; leaves thin, glaucous beneath, linear, acutish at both ends, an inch long or less. In both forms the appendages are unequal, the upper pair larger and oblique. — Hills and mountains about Guaymas. (215, 627.)

Euphorbia Californica, Benth.? Probably not only this species but also *E. Hindsiana*, Benth. A shrub 3 or 4 feet high, with slender branches; leaves round-obovate, 3 to 6 lines long, obtuse or retuse, on very slender petioles longer than the blade: peduncles terminal, mostly solitary: appendages lobed or merely crenate even in the same involucre: lobes of the capsule (2 lines long) scarcely carinate. — High mountain ravines above Guaymas. (260.)

Euphorbia misera, Benth. A shrub 3 to 5 feet high. On stony mountain-sides above Los Angeles Bay. (514.)

Euphorbia eriantha, Benth. Rocky ridges about Guaymas and Los Angeles Bay. (84, 518.)

Simmondsia Californica, Nutt. Common about Guaymas. (343, 344.)

Jatropha canescens, Müll. "Sangre en grado." A shrub, 3 to 8 feet high, with rose-colored flowers, and thick clustered roots. A decoction of the plant is used as a mordant in dyeing, and the juice as a remedy for warts, diseased gums, sore throats, etc. Common on the mesas about Guaymas. (103.)

Jatropha spathulata, Mull., var. sessiliflora, Mull. "Tocote prieto." A shrub, 5 to 15 feet high, common about Guaymas and Los Angeles Bay. The fruit of this variety appears to be always 1-coccous. The bark is used as a mordant and for tanning, and is exported for these purposes. It is also a dye, giving a reddish brown color, but is injurious to cloth. (164, 576.)

Jatropha Palmeri. A shrub, the branches softly pubescent: leaves round-ovate, coarsely and very acutely sinuate-dentate (the teeth glandular-tipped), densely and subtomentosely pubescent on both sides, 1½ inches long by 2 wide or smaller: panicles shorter than the leaves; flowers apetalous, the white cylindrical pubescent calyx 4 or 5 lines long, with round-ovate lobes: stamens of male flowers 10, in two unequal ranks, the filaments connate and disk densely tomentose: ovary densely pubescent (becoming 3 or 4 lines long), the styles twice bifid. — Apparently referable to Müller's subsection *Calyptrosolen*, but it is more shrubby in habit and the calyx is less deeply lobed. Only

a single plant found at a high elevation in the mountains above Guaymas. (302.)

Croton Pringlei, Watson. With a minty odor. Ravines and mesas about Guaymas. (180.)

Argythamnia sericophylla, Gray. In gravelly waste places about Guaymas. (108.)

Argythamnia Neo-Mexicana, Müll. Several forms, all of which appear to belong to this species. Plains and mountain-sides about Guaymas. (80, 624, 625.)

Argythamnia Palmeri. Stems numerous, erect, 1½ to 2 feet high, rather sparsely appressed-villous except on the young branches: leaves oblong to lanceolate, acute, more or less attenuate to a very short petiole, entire, 1½ or 2 inches long or smaller: flowers apparently dioecious, the pistillate solitary or in pairs in the axils, on recurved pedicels 1 or 2 lines long; sepals 2 lines long, becoming 4 lines in fruit; petals pilose, ovate-lanceolate, shortly acuminate: styles bifid, the stout branches dilated upward and hispid on the inner side: seeds ovate-globose, over a line long, coarsely reticulate-pitted. — High in the mountains above Guaymas. (247.)

Manihot angustiloba, Müll. Growing 2 or 3 feet high. In the shade on high mountains above Guaymas. (233.)

Acalypha Pringlei, Watson, var., with the pubescence scarcely or not at all glandular, and the teeth of the bracts more numerous (often 13). Mountains above Guaymas. (219, 262.)

Tragia nepetæfolia, Cav. Hedges about Guaymas. (63.) — Also var. amblyodonta, Müll. (623.)

Sebastiania (?) bilocularis, Watson. A shrub or small tree, sometimes 15 feet high. "Yerba fleche"; the juice is an exceedingly active and violent cathartic, and the fresh bark is used by the Indians to stupefy fish. Common on the shores and in the hills and mountains about Guaymas. (234.)

Celtis pallida, Torr. A thorny shrub, 6 feet high or more, with orange-colored fruit. Guaymas. (89.)

Ficus (Urostigma) Palmeri. A tree 8 to 12 feet high, branching near the ground; young branchlets white-villous-pubescent: leaves at first densely white-tomentose beneath, becoming nearly equally green on both sides and finely pubescent or subglabrous above, rather thick, ovate, with a somewhat cordate or rounded base, acute, 3 inches long by 2 or 2½ broad, on petioles an inch long: fruit in pairs in the axils, on stout peduncles 6 lines long, globose, thick and fleshy, 6 lines in diameter, subtended by an irregular disk-like involucre 3 lines

broad: fertile flowers sessile, the perianth of three distinct sepals exceeding the compressed ovary, the lateral ovate and somewhat concave, the other carinate; abortive pistillate flowers very similar, but upon a short stout pedicel and the lateral sepals narrower; staminate flowers also short-pedicellate, the perianth of three large oblong-obovate sepals; anther sessile, broad, obtuse. — Fruit edible. On San Pedro Martin Island; rare. (413.)

Ficus (Urostigma) fasciculata. A tree with a large trunk (8 feet high) bearing a widely spreading top, the lower limbs horizontal, sending down and supported by aerial roots; foliage and rather slender branchlets wholly glabrous: leaves somewhat crowded at the ends of the branchlets, thin, oblong-lanceolate, short-acuminate or acute, 3-nerved at the rounded or acutish base, punctieulate above, finely reticulated beneath, 1½–2½ inches long, on petioles ½ inch long: fruit solitary in the axils, on slender peduncles 2 lines long, subtended by a 4-lobed involucre, depressed-globose with a sunken orifice, 5 lines in diameter (immature); flowers all on short stout pedicels, somewhat oblique, the perianth short, gamophyllous, unequally and irregularly 2–3-lobed, the lobes short and obtuse; style of some of the pistillate flowers filiform and entire, of others bifid; anther sessile, ovate, acute, the cells rather long-apiculate. — Cultivated at Guaymas, but said to be native to the region. (646.)

Ficus (Urostigma) Sonoræ. A tree 15 to 40 feet high, without aerial roots, glabrous throughout: leaves as in the last, but more scattered on the branchlets and more cuneate at base, the larger nearly 4 inches long: fruit solitary, on slender peduncles 4 or 5 lines long, subtended by an irregular disk-like involucre, globose, 5 lines in diameter: fertile flowers sessile, the perianth cleft to the middle with broad acutish lobes, shorter than the globose nutlet, which develops much mucilage when wetted; abortive pistillate flowers with a stipitate oblong-obovate empty ovary (not mucilaginous) surrounded by a tubular-funnelform 3-cleft perianth; staminate perianth similar, but shorter and somewhat broader, the anther ovate, acute. — Fruit black, edible, and known as "Nacapuli." Cultivated at Guaymas (92), and also found wild in the ravines of the mountains (645). In its foliage it closely resembles *F. turbinata*.

Brodiæa Palmeri. Stem 1½ to 2 feet high, bearing numerous bulblets at and below the surface; leaves linear, a little shorter than the scape, 8 lines broad or less: pedicels numerous, ½ to 1 inch long or more: corolla purple, 6 to 8 lines long, funnel-form from a narrow base, cleft to the middle, the throat coronate with a row of very short

thin laminæ between the principal veins: filaments 6, naked, scabrous, free from near the top of the tube and nearly equalling the corolla; anthers basifixed, linear, 1½ lines long: capsule equalling the perianth, ovate, narrowed to a short stipe, the cells 2-seeded. — Of the *Seubertia* section, though with the basifixed anthers of *Eubrodiæa*. Abundant in low places on the sandy plains about Los Angeles Bay. (596.)

Washingtonia Sonoræ. A tree reaching 25 feet in height and a foot in diameter: leaves 3 or 4 feet in diameter, somewhat glaucous, very filiferous, upon rather slender petioles which are armed with stout curved spines: spadix slender, 5 or 6 feet long: fruit about 3 lines long, the flattened-globose seed 2 to 2½ lines in the longest diameter. — Apparently distinct from *W. filifera* and *W. robusta* in its more slender petioles, more glaucous leaves, and smaller fruit. The seeds are used for food by the Indians. It may here be noted that in the "Genera Plantarum" the genus *Washingtonia* is placed in the group having basilar styles, though it is correctly described as having the style terminal. In secluded cañons in the mountains about Guaymas. (311.)

Potamogeton pectinatus, Linn. "Grama"; used in decoction "to purify the blood." In a small lake near Muleje. (23.)

Naias major, All. "Saragossa." Abundant in a shallow lake near Muleje. (20.)

Juncus* robustus, Watson. In brackish water. Muleje. (34.)

Cyperus speciosus, Vahl. Margin of a fresh-water lake near Muleje (36), and high in the mountains above Guaymas (640). — C. lævigatus, Linn. Near Muleje and at Los Angeles Bay. (39, 509.) — C. aristatus, Rottb. At Guaymas, near the harbor and also high in the mountains (193, 637), and on the summit of San Pedro Martin Island (417). — C. esculentus, Linn. At Guaymas. (203.) — C. articulatus, Linn. High in the mountains above Guaymas. (636.) — C. ferax, Rich. At the same locality. (639.)

Eleocharis capitata, R. Br. Same locality. (635, 635½.)

Fimbristylis laxa. With pale glumes. Same locality. (638.)

Scirpus Olneyi, Gray. At Muleje. (37.)

Paspalum distichum, Linn. High in the mountains above Guaymas. (693.) — P. pubiflorum, Ruprecht. At Muleje and Guaymas. (45, 79.)

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* The following *Juncaceæ* and *Cyperaceæ* were determined by Dr. N. L. Britton, and the *Gramineæ* by Dr. George Vasey.

Eriochloa punctata, Desv. At Muleje (44), and at Guaymas.

Panicum sanguinale, Linn. At Muleje (48), and the var. ciliare near Guaymas (269, 695). — P. Hallii, Vasey. About Guaymas. (206.) — P. dissitiflorum, Vasey, *n. sp.* In deep ravines and by irrigating ditches about Guaymas. (159, 190.) — P. fasciculatum, Sw. Plains and foothills about Guaymas. (207.) Also var. majus, by ditches. (158.) — P. paspaloides, Pers. Near Guaymas. (690.) — P. colonum, Linn. At Muleje (46), and about Guaymas. (51, 202.) — P. lachnanthum, Torr. Not eaten even by goats. About Guaymas. (54, 348.) — P. capillare, Linn., var. At Guaymas. (208.)

Setaria composita, HBK. About Guaymas. (53.) — S. caudata, R. & S. At Guaymas and upon a small sandy island in the harbor. (340.) Also var. pauciflora. At Guaymas. (191.)

Cenchrus echinatus, Linn. At Guaymas. (168.) — C. myosuroides, HBK. Near salt water on an island in Guaymas harbor. (327.) — C. tribuloides, Linn. On the ruins of the old French fort at Guaymas. (349.) — C. Palmeri, Vasey, *n. sp.* Near Guaymas and at Los Angeles Bay. (271, 689.)

Hilaria cenchroides, HBK., var. longifolia. Islands in Guaymas harbor. (347.)

Cathesticum erectum, Vasey & Hack., and var. Abundant on mesas and hillsides and in gardens about Guaymas, and on islands in the harbor. (161, 345.)

Heteropogon contortus, R. & S. Hillsides and mountains about Guaymas. (267.)

Sorghum Halepense, Pers. Gardens and fields about Guaymas. (64.)

Aristida dispersa, Trin. Gardens and fields about Guaymas. (66.) — A. bromoides, HBK., and var. On rocky ridges at Los Angeles Bay. (503, 504.) — A. Schiedeana, Trin. & Rupr. Hedges and rocky ledges about Guaymas. (55, 268.) — A. fugitiva, Vasey, *n. sp.* On sandy beaches at Los Angeles Bay. (501.)

Stipa Californica, Vasey, *n. sp.* In mountain cañons about Los Angeles Bay. (505.)

Muhlenbergia spiciformis, Trin. Rocky hills near Guaymas. (272.) — M. tenella, Trin. Island of San Pedro Martin, common among rocks; the only grass. (416.) — M. debilis, Trin. Plains and mountains about Los Angeles Bay. (510.)

Sporobolus cryptandrus, Gray. Abundant about Guaymas. (65.) — S. humifusus, Kunth. Abundant about Guaymas in the

rainy season. (188.) — S. VIRGINICUS, Kunth. On islands in Guaymas harbor. (338.) — S. DOMINGENSIS, Kunth, and vars. Common about Guaymas. (160, 165, 696.)

AGROSTIS VERTICILLATA, Vill. At Muleje. (41.)

CHLORIS ELEGANS, Kunth. Near Los Angeles Bay. (506.)

BOUTELOUA ARISTIDOIDES, Thurb. About Guaymas (162, 194), and at Los Angeles Bay (507). — B. ROTHROCKII, Vasey. Gardens and fields at Guaymas. (166.) — B. ARENOSA, Vasey, *n. sp.* Plains and ridges about Guaymas. (189.) — B. BROMOIDES, Lag. Mountains and ledges about Guaymas. (201.) — B. POLYSTACHYA, Torr. Sandy bottoms near the sea at Los Angeles Bay. (346?, 508.) Also var. MAJOR. Common about Guaymas. (204, 205.)

ELEUSINE INDICA, Gaertn. Common at Muleje. (35.) — E. ÆGYPTIACA, Pers. About Guaymas. (275, 328.)

LEPTOCHLOA MUCRONATA, Kunth, and var. Common about Guaymas. (50, 192, 694.)

PAPPOPHORUM APERTUM, Munro. On the old fort at Guaymas and on rocky mountain-sides. (274, 350.) — P. WRIGHTII, Watson. Rocky ridges near Bay of Los Angeles. (511.)

COTTEA PAPPOPHOROIDES, Kunth. Rocky island in Guaymas harbor. (339.)

TRIODIA PULCHELLA, HBK. On a high rocky point above Los Angeles Bay. (500.)

DIPLACHNE IMBRICATA, Vasey. Common at Muleje (47), and at Guaymas. — D. DUBIA, Benth. High in the mountains above Guaymas. (270, 273.) — D. TRACYI, Vasey. Same locality. (691.) — D. VISCIDA, Scribner. Same locality. (692.)

PHRAGMITES COMMUNIS, Trin. At Muleje. (38.)

ERAGROSTIS MAJOR, Host; forms. At Muleje (40, 40½), and about Guaymas. — E. PURSHII, Schrad. At Muleje. (42, 49.) Also var. DIFFUSA. Common about Guaymas. (167.)

DISTICHLIS MARITIMA, Raf. At Muleje, common. (43.)

LOLIUM PERENNE, Linn. In a garden at Guaymas. (52.)

NOTHOLÆNA* LEMMONI, Eaton. In high mountains near Guaymas. (266.) — N. CRETACEA, Liebm. (*N. Californica*, Eaton.) Rocky mountain-sides above Los Angeles Bay. (552.)

CHEILANTHES PRINGLEI, Davenport. Rocky mountain ledges near Guaymas. (265.) — C. MYRIOPHYLLA, Desv. Mountains at Los Angeles Bay. (553.)

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* The Ferns were determined by Prof. D. C. EATON.

Pellæa Seemanni, Hook. Shaded rocky ledges in the mountains about Guaymas. (226.) — P. Wrightiana, Hook. The form with numerous pinnules (*P. longimucronata*, Hook.). Los Angeles Bay. (554.)

Indeterminable Species.

179. Flowering specimens from a tree growing on sandy plains about Guaymas, described as 12 to 15 feet high and 1 to 5 feet in diameter, with very green bark and a dense symmetrical top. Its wood is said to be useless even for fuel. The young branches are finely pubescent, and the leaves are alternate, coriaceous, entire, linear with a cordate base, obtuse, glabrous and veiny above, very strongly reticulate-veined beneath, with a stout midnerve and the margins revolute, about 3 inches long by 2 lines broad, the very short petiole (a line long) jointed upon the stem; stipules none. The flowers as collected are in loose simple naked racemes 2 inches long, the scattered spreading pedicels 2 or 3 lines long. They are probably dioecious, as all those collected have only an imperfectly or scarcely at all developed ovary. The calyx is very small, 6–8-parted, apparently valvate; petals none; stamens about 20 (18–22) upon a prominent lobed hypogynous disk (nearly equalling the calyx), the filaments distinct, slender, 3 lines long, and the anthers short, basifixed, 2-celled, and longitudinally dehiscent. The most fully developed ovaries are smooth, oblong, somewhat obcompressed, 2-celled, with a nearly sessile thick 2-lobed stigma, and apparently one or more (?) pairs of collateral rudimentary ovules upon the axis. The relations of this remarkable species are very obscure, and must await fuller material for their determination. It will probably be found to belong to the *Tiliaceæ*.

307. "Yerba del ayre"; foliage only of an unrecognized shrub, found in ravines about Guaymas. A decoction of the leaves is used as a remedy for paralysis.

2. *Descriptions of some New Species of Plants, chiefly Californian, with miscellaneous Notes.*

Silene Bernardina. Finely glandular-pubescent throughout; stems slender from slender rootstocks, a foot high, few-flowered: leaves very narrowly linear-oblanceolate, 1 or 2 inches long: peduncles slender, 1–3-flowered: calyx cylindrical, $\frac{1}{2}$ inch long, with oblong-ovate teeth; petals greenish, 8 lines long, the blade cleft to below the

middle into four equal narrow lobes; coronal appendages nearly half the length of the blade, thin, 2-parted, the outer segment linear, entire, the inner oblong and lacerate; claw naked, broadly auriculate: stamens included, unequal: capsule oblong, shortly stipitate. — Of the *S. Lemmoni* and *S. occidentalis* group. On shady slopes in Long Meadow, Tulare Co., California; Dr. E. Palmer, June, 1888 (n. 185).

Erigeron sanctarum. Perennial and dwarfish, the branches of the rootstock very slender and naked, bearing one to several erect or subdecumbent 1-flowered stems, leafy except toward the top, a span high or less, rough-pubescent: leaves entire, narrowly oblanceolate, becoming linear above, the lower an inch long (or sometimes longer and with a slender petiole): heads medium-sized; involucre of numerous very narrow acuminate bracts in two series, the outer hispid, densely so at base: rays many, purple or fading to white; pappus simple. — Not closely allied to any other of the *Euerigeron* section. Collected by Mr. T. S. Brandegee in the Santa Inez Mountains, California, also near Santa Barbara, and on the island of Santa Rosa, 1888.

Bæria (Eubæria) Parishii. Low and slender, much branched, pubescent with loose woolly hairs: leaves narrowly linear, acute, mostly pinnately cleft with one to several pairs of lobes: heads small, 2 lines high or rarely more; involucral bracts 10 to 12, thin and lax, the midvein not prominent: ligules short: style-tips truncate, with an oblique apiculation on the inner side: achenes slender, without pappus. — Resembling epappose small-headed forms of *B. gracilis*, differing in the pubescence and cleft leaves and in the apiculate style-tips, and approaching the *B. platycarpha* group. On the foothills of the San Bernardino Mountains, at 1500 feet altitude; collected by Mr. S. B. Parish, in May, 1888.

Bahia Palmeri. Low and slender (not 6 inches high), somewhat soft-pubescent and resinous-atomiferous: leaves mostly alternate, entire, very narrowly linear, an inch long or less: heads sessile and somewhat clustered, narrowly turbinate, 2–6-flowered; involucral bracts 3 or 4, narrowly oblanceolate, acutish, wholly green and herbaceous: rays none; corolla-lobes 5, more or less unequal: achenes rather broad, obtusely quadrangular, finely striate and glandular-puberulent; pappus of 8 to 10 thin obtuse oblong-spatulate denticulate chaff, narrowed and thickened toward the base, half the length of the corolla-tube. — An anomalous species, intermediate between *Schkuhria* and *Bahia* as defined by Dr. Gray, and tending to invalidate the distinction drawn by him between the genera. It is placed

in *Bahia* as nearer to the section *Achyropappus* of that genus than to *Schkuhria* § *Hopkirkia*, especially in the characters of the involucre and achene. Found by Dr. E. Palmer (n. 168) on low slopes and ridges in Long Meadow, Tulare Co., California, June, 1888.

Cacalia tussilaginoides, HBK. In the notes made by Dr. Gray (as given in these Proceedings, vol xxii. p. 432) upon the specimens collected by Dr. Palmer in Jaliseo (n. 168, of 1886), which he referred with some uncertainty to this species, the words "ex char." should have been erased in the proof-reading. These were in his notes as sent from the Kew Herbarium, where he had found only the Coulter specimen to which he alludes. Later, he examined at Paris Humboldt's original specimens upon which the species was based, with the result that he directed the retention of the reference, though leaving it still questionable.

Microseris anomala, Watson, in Proc. Amer. Acad., 22. 474. This species was described under a misapprehension of the character of the pappus. It is without a doubt a form of *M. macrochæta*, Gray. The mature fruit of this species is still unknown.

Collinsia Wrightii. Low and divaricately branching (3 or 4 inches high), glandular-pubescent and viscid: leaves opposite, linear-oblong or -lanceolate, entire, about an inch long: flowers pedicellate, 1 or 2 in the axils, the uppermost in a naked umbel; calyx 2 lines long, the narrow lobes obtusish; corolla but little longer, the tube and throat shorter than the broad obtuse lobes of the limb, the lower lip blue, the upper yellowish: capsule equalling or a little shorter than the calyx, 2-seeded: seeds oblong, nearly terete, with a deep ventral sulcus. — Near *C. Torreyi*, with the habit and flowers of *C. parviflora*. On the Greenhorn Mountains, Kern County, California, at 6,000 to 7,000 feet altitude; collected by Mr. W. G. Wright and Dr. E. Palmer in June, 1888.

Mimulus (Eumimulus) deflexus. A dwarf slender annual, 2 or 3 inches high, sparingly viscid-puberulent: leaves linear to linear-oblong, entire, less than $\frac{1}{2}$ inch long: pedicels exceeding the leaves, soon widely spreading or usually reflexed: calyx glabrous, narrow, not strongly nerved or angled, nearly equally and obtusely toothed, 2 to $2\frac{1}{2}$ lines long; corolla 6 or 7 lines long, the narrow tube nearly twice the length of the calyx, the broad limb deeply bilabiate; upper lip deep purple, with emarginate lobes, the lower deep yellow with bifid lobes, somewhat hairy and spotted below: capsule $1\frac{1}{2}$ lines long: seeds brownish, irregularly ovate to oblong-ovate, somewhat rugulose longitudinally. — A very pretty little species, of the

same group with *M. bicolor*, *montioides*, and *rubellus*. The placenta splits at the apex. Collected by Dr. E. Palmer (n. 176) in June, 1888, on the drier edges of low wet places in Long Meadow, Tulare Co., California.

Louteridium Donnell-Smithii, Watson, Proc. Amer. Acad. 23. 283. In the description of this curious Guatemalan genus the calyx is inadvertently described as inverted. It is of course the three upper sepals that are united into one, the two lower remaining distinct. The same plant has since been detected in my own collection made in Guatemala in March, 1885, — found in flower at the plantation on the Chocon River and noted as growing from 3 to 9 feet high.

Eriogonum (Ganysma) Esmeraldense. Leaves all radical, hispid, especially on the margins, round-obovate, cuneate at base, small (an inch long including the petiole), the rest of the plant wholly glabrous and glaucous: stem slender, repeatedly dichotomous above; bracts small, deltoid to oblong; pedicels very slender, 2 or 3 lines long, mostly strongly reflexed: involucres narrowly turbinate, $\frac{1}{2}$ line long, cleft to the middle: flowers glabrous, white or pinkish, the oblong to oblong-spatulate segments nearly equal, retuse or obtuse, $\frac{1}{2}$ line long. — Near *E. glandulosum*, but wholly destitute of glands. Found by Mr. W. H. Shockley, July, 1888, in Esmeralda Co., Nevada, at Candelaria, and on Miller Mountain at 7,000 feet altitude.

Eriogonum (Oregonium) gracilipes. A dwarf cespitose perennial, with compactly branched caudex and crowded oblanceolate tomentose leaves, $\frac{1}{2}$ inch long or less: peduncles slender, $\frac{1}{2}$ to 2 inches long, glandular-puberulent: involucres few in the small solitary head, turbinate, tomentose: flower glabrous, more or less deep rose-color, exserted. — Of the *E. Kennedyi* group, distinguished most conspicuously by the glandular-puberulent peduncle. On the White Mountains, Mono Co., California, at 13,000 feet altitude; W. H. Shockley, August, 1888.

Nemastylis Pringlei. Stem a span high, terete, usually simple, 1-leaved near or above the middle: radical leaves shorter than the stem, 1 or 2 lines broad, 2–3-nerved (the nerves somewhat winged alternately on the two sides); spathe-bracts unequal, the larger nearly equalling the solitary pedicel, $1\frac{1}{2}$ inches long: flowers very fragrant, of a delicate pale blue, the segments oblong-oblanceolate, obtusish, the outer 15 lines and the inner 13 lines long, minutely apiculate: staminеal column nearly 2 lines long, half the length of the linear yellow anthers: divergent stigma-lobes $1\frac{1}{2}$ lines long: capsule oblong, 5 to 10 lines long. — Collected by Mr. C. G. Pringle

in 1887 (n. 1378) in the mountains of Chihuahua in fruit, and described from plants in flower at the Cambridge Botanic Garden in July, 1888.

Nemastylis Dugesii. The plant described by myself as a *Tigridia* in Proc. Am. Acad. 20. 375, based upon drawings by Prof. Dugès, should doubtless have been referred rather to *Nemastylis*, as the style-branches are plainly represented to be alternate with the anthers.

Calathea crotalifera. Low; leaves oval, abruptly acute at each end, 1½ to 2 feet long by 10 or 12 inches broad, yellowish green, the midvein with a narrow whitish margin, paler beneath; petiole 2 or 3 feet long, at base sheathing the one or two peduncles, which are 8 or 10 inches high: spike erect, distichous, 6 to 10 inches long, the bracts (20 to 40) closely imbricated, duplicate-reniform, subtruncate, 1¼ inches long or less, yellowish green tinged with red; bractlets doubly winged on the back: flowers mostly included, yellowish; sepals scarious, 4 to 6 lines long, about half the length of the petals. — In wet shaded places at the base of the El Mico Mountains near Yzabal, Guatemala, April, 1885; also received in flower from Messrs. Reasoner Brothers, of Manatee, Florida, cultivated from Guatemala roots. The resemblance of the spike to the rattle of a *Crotalus* suggests the name.

Sisyrinchium anceps, Cav. Having had occasion to investigate the nomenclature and synonymy, as well as validity, of the species of *Sisyrinchium* found within the limits of Gray's Manual, I would again propose the restoration of the above name for one of our forms. The error made by Linnæus in uniting the Tournefortian *Bermudiana* from Bermuda with the species that had come into cultivation in Europe from this country was recognized by the botanists generally of that day, and the two species were kept distinct afterward, as they had been before. Miller (1768) was the first to give a definite binomial name to the American plant, calling it *S. angustifolium*, and the form intended by him is easily recognized from his description, and from the figure given by Dillenius, which represent a plant with a simple stem bearing a single spathe. In 1783, Lamarck published the name *S. gramineum* for what as described by him and afterward, figured by Redouté would appear to be the same thing. In 1788, Cavanilles gave the name *S. anceps* to what might also be considered the same, except that his figure shows a plant with a branching stem. Michaux afterwards in his Flora described two species (*S. Bermudiana* and *S. mucronatum*) as found by him in the Atlantic States. Of these,

S. mucronatum is the old species, i. e. *S. angustifolium* of Miller. His *S. Bermudiana* is distinguished as having a broadly winged branching stem and equally bracted spathes, and he cites *S. anceps*, Cav., as probably a variety. Nuttall in his "Genera" simply mentions three species, *S. anceps*, *S. mucronatum*, and *S. Bermudiana*, and Sweet is cited ("Brit. Fl. Gard., 2 ed., 498") as having given to the last the name *S. Nuttallii*. Later American botanists have endeavored to distinguish two species, *S. anceps* and *S. mucronatum*, by the characters of the perianth, spathes, and stems, but with so little satisfaction that more recently Dr. Torrey and Dr. Gray have united them as varieties under the Bermudan species *S. Bermudiana*. A comparison of such fruiting specimens as have come in my way have shown an evident difference in the seeds of our common species, some being globose, quite strongly pitted, and less than $\frac{1}{2}$ a line in diameter, others more angled, rather less pitted, and about twice larger (rather more than $\frac{1}{2}$ line broad). This difference of seed appears always to accompany a difference of habit, the larger seed belonging to the simple stemmed form (*S. angustifolium*), while the plant with smaller seeds is always branching, bearing several spathes. This seems to justify the retention of the two species of our early botanists, and, restoring Miller's name for one, there seems to me no good objection to keeping up Cavanilles's name for the other. Both species are very commonly distributed through the eastern United States, from Canada to the Gulf. The species of the Gulf region still need investigation.

Allium hyalinum, Curran in herb. Bulb-coats gray, the areolæ of the peculiar reticulation narrowly linear and much contorted: leaves several, very narrow: scape slender, a foot high or less; spathe bifid, unilateral; pedicels rather few, an inch long or less: perianth white to purplish, broad, 3 to $4\frac{1}{2}$ lines long, the acute segments broadly lanceolate to ovate, the inner somewhat narrower: stamens a third shorter, the filaments dilated at base: ovary not crested. — First collected at Salmon Falls in Eldorado Co., California, by Mrs. M. K. Curran, June, 1881; also recently found by Mr. T. S. Brandegee on Santa Cruz Island. The flowers much resemble those of *A. campanulatum*, which is a stouter plant with broader leaves, the reticulation in the bulb-coats minute and extremely sinuous, the filaments more slender, and the ovary crested.

INDEX.

Abronia, 70.
Abutilon, 40.
Acacia, 48.
Acalypha, 77.
Achyronychia, 71.
Acoma, 56
Agrostis, 81.
Allionia, 68.
Allium, 87.
Amarantus, 71.
Amoreuxia, 40.
Anoda, 40.
Antigonon, 73.
Antirrhinum, 65.
Aplopappus, 54.
Apodanthera, 50.
Argemone, 38.
Argythamnia, 77.
Aristida, 80.
Aristolochia, 73.
Asclepias, 59.
Aster, 55.
Astragalus, 46.
Atamisquea, 39.
Atriplex, 72.
Ayenia, 42.

Baccharis, 55.
Bæria, 83.
Bahia, 83.
Bebbia, 58.
Beloperone, 67.
Beta, 72.
Bigelovia, 54.
Boerhaavia, 68.
Bouchea, 68.
Bouteloua, 81.
Bourreria, 62.
Brickellia, 54.
Brodiæa, 78.
Bunchosia, 42.
Bursera, 43.

Cacalia, 84.
Cæsalpinia, 47.
Calathea, 86.
Calliandra, 49.
Capsicum, 65.
Cardamine, 38.
Cardiospermum, 45.
Cassia, 47.
Cathesticum, 80.
Celtis, 77.
Cenchrus, 80.
Cereus, 52.
Cheilanthes, 81.
Chenopodium, 72.
Chloris, 81.
Citharexylum, 67.
Cladothrix, 71.
Cleome, 39.
Cocculus, 38.
Coldenia, 62.
Collinsia, 84.
Colubrina, 44.
Conobea, 66.
Cordia, 61.
Cottea, 81.
Cracca, 46.
Crescentia, 46.
Cressa, 64.
Croton, 77.
Cryptocarpus, 71.
Cucurbita, 50.
Cuscuta, 64.
Cyperus, 79.

Dalea, 45.
Desmanthus, 48.
Desmodium, 47.
Dianthera, 67.
Diphysa, 46.
Diplachne, 81.
Distichlis, 81.
Dodonæa, 45.
Drymaria, 40.
Dysodia, 58.

Echinopepon, 51.
Echinopterys, 43.
Eclipta, 56.
Eleocharis, 79.
Elensine, 81.
Ellisia, 61.
Elytraria, 66.
Encelia, 56.
Eragrostis, 81.
Erigeron, 83.
Eriochloa, 80.
Eriogonum, 73, 85.
Erodium, 43.
Eschscholtzia, 38.
Eucnide, 50.
Eupatorium, 54.
Euphorbia, 74.
Evolvulus, 63.

Fagonia, 43.
Ficus, 77.
Fimbristylis, 79.
Franseria, 55.
Frankenia, 40.
Frœlichia, 71.

Galium, 53.
Galphimia, 42.
Gaura, 49.
Genipa, 53.
Gilia, 61.
Gomphrena, 71.
Gossypium, 41.
Guaiacum, 43.
Gutierrezia, 54.

Hæmatoxylon, 47.
Haplophyton, 59.
Helianthus, 56.
Heliotropium, 63.
Hermannia, 42.
Heteropogon, 80.
Hibiscus, 41.
Hilaria, 80.
Himantostemma, 61.
Hiræa, 43.
Hoffmanseggia, 47.
Hofmeisteria, 53.
Horsfordia, 40.
Hosackia, 45.
Hyptis, 68.

Indigofera, 46.
Ionidium, 40.
Ipomœa, 63.
Iresine, 72.

Jacobinia, 67.
Jacquemontia, 63.
Jacquinia, 59.
Jamesia, 43.
Jatropha, 76.

Juncus, 79.
Jussiæa, 49.

Kosteletzkya, 41.
Krameria, 40.
Krynitzkia, 63.

Lagascea, 55.
Lantana, 67.
Laphamia, 57.
Lepidium, 39.
Leptochloa, 81.
Leptosyne, 56.
Lippia, 67.
Loasella, 50.
Lobelia, 59.
Lolium, 81.
Loranthus, 73.
Louteridium, 85.
Lupinus, 45.
Lycium, 65.
Lyrocarpa, 39.
Lysiloma, 49.

Malperia, 54.
Manihot, 77.
Marsdenia, 61.
Martynia, 66.
Maximowiczia, 51.
Maytenus, 44.
Melilotus, 45.
Melinia, 60.
Melochia, 42.
Mentzelia, 50.
Metastelma, 60.
Microseris, 84.
Mimosa, 48.
Mimulus, 66, 84.
Mirabilis, 68.
Mohavea, 65.
Mollugo, 52.
Muhlenbergia, 80.

Naias, 79.
Nasturtium, 39.
Nemastylis, 85.
Nicolletia, 58.
Nicotiana, 65.
Nissolia, 46.
Notholæna, 81.

Œnothera, 49.
Oligomeris, 39.
Opuntia, 52.

Palafoxia, 57.
Panicum, 80.
Pappophorum, 81.
Paspalum, 79.
Passiflora, 50.
Pattalias, 60.
Paullinia, 45.
Pectis, 58.
Pedilanthus, 74.
Pellæa, 82.
Peluchа, 55.
Perezia, 58.
Perityle, 57.
Petalonyx, 50.
Peucephyllum, 58.
Phacelia, 61.
Phaseolus, 47.
Phaulothamnus, 73.
Philibertia, 59.
Phoradendron, 73.
Phragmites, 81.
Physalis, 64.
Pithecolobium, 49.
Plantago, 68.
Polygonum, 73.
Porophyllum, 57.
Portlandia, 52.
Portulaca, 40.
Potamogeton, 79.
Prosopis, 48.
Psilactis, 55.

Randia, 53.
Rhizophora, 49.
Rhynchosia, 47.
Riddellia, 57.
Rothrockia, 61.
Ruellia, 66.
Salvia, 68.
Scirpus, 79.
Sebastiania, 77.
Senecio, 58.
Serjania, 45.
Sesbania, 46.
Setaria, 80.
Sida, 40.
Sideroxylon, 59.
Silene, 82.
Simmondia, 76.
Sisymbrium, 39.
Sisyrinchium, 86.
Solanum, 64.
Sorghum, 80.
Sphæralcea, 41.
Spirostachys, 72.
Sporobolus, 80.
Stachys, 68.
Stegnosperma, 73.
Stemodia, 66.
Stipa, 80.
Suæda, 72.
Sympetaleia, 50.

Tamarindus, 47.
Tephrosia, 46.
Tigridia, 86.
Tragia, 77.
Trianthema, 52.
Tribulus, 43.
Trichoptilium, 58.
Triodia, 81.
Triphasia, 43.
Trixis, 59.

Vallesia, 59.
Verbesina, 56.
Viguiera, 56.
Viscainoa, 43.
Vitex, 68.

Waltheria, 42.
Washingtonia, 79.
Wislizenia, 39.

Zizyphus, 44.